



## **Informal Party Comments**

### **Societal Cost Test Workshop**

Thursday, September 22, 2016

Integrated Distributed Energy Resources (IDER) Proceeding | R.14-10-003

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To: Pierre Bull and colleagues, Energy Division CPUC  
From: Claire Broome MD  
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350 Bay Area

Informal comments on September 22, 2016 Societal Cost Test workshop:

**Fundamental issue:**

This phase of the IDER proceedings has both the charge and the opportunity to standardize-- and rethink-- how the CPUC uses cost-effectiveness analysis. As the Energy Division outlined in their presentation, the Standard Practice Manual provides information on the tests which can be used to account for different perspectives in a cost-effectiveness analysis-- Program Administrator, Ratepayer Impact, Participant. However, in 2016 with California's ambitious climate policy goals and the urgency of the climate crisis, the perspective of the **public** in California should be the first focus for CPUC decision making. A societal cost test provides that perspective. We appreciate the Energy Division starting Phase 3 of this discussion to fulfill the statutory requirement to take the value of societal costs into account.

In my professional activities in the public health field, I have undertaken, published, and used cost-effectiveness analyses. I am familiar with methods for assessing direct costs in cost-effectiveness analysis used for evaluating different policy options i.e. decision analysis. Despite arguments from some of the parties, it is entirely feasible to obtain incidence and cost figures from credible sources for the adverse health effects attributable to criteria pollutants released by combustion of fossil fuels.

While I understand that the CPUC and most of the parties have a familiarity and comfort level with analyses restricted to the energy system, there is a serious flaw which undermines the validity of analyses restricted only to the energy system. As is well recognized (National Academy of Sciences Hidden Costs of Energy 2010) many of the direct costs of fossil fuel combustion are not reflected in the market price of fossil fuels i.e. are externalized. A cost-effectiveness analysis provides the opportunity for the CPUC to consider **all the direct** costs of fossil fuel combustion in its decision-making. It is particularly appropriate to include these direct damage costs because when the current system externalizes costs such as health impact of criteria pollutants, these costs are paid by the California residents who get asthma and lung disease, who are also ratepayers, as well as other members of the public who pay for unrecovered costs in the health care system. At the same time, IOU shareholders do not pay for these health impacts and in effect profit from the artefactually low cost of fossil fuels. So accounting correctly for direct costs of fossil fuel combustion is only fair to ratepayers, as well as to California society.

Similarly, the current costs of climate change due to fossil fuel combustion are externalized and therefore paid by the public/ratepayers while shareholder profits are not subject to these costs.

Ratepayers will also benefit if more accurate cost decisions (combined with accurate projections of falling demand due to Energy Efficiency) result in fewer stranded assets, such as contracts for unneeded new gas generating capacity.

Since some of the decisions facing the CPUC require comparing e.g. gas generating capacity to preferred resources, a cost-effectiveness analysis which accurately and fairly considers the true costs of the policy alternatives should be the primary basis for decision-making. Therefore IDER should not restrict the scope of this discussion to a comparison among avoided costs of renewable alternatives as presented in the straw proposal. The true societal cost test which includes credible estimates of the damage costs should be the primary approach.

**Questions to Stakeholders:**

**Is this history accurate /complete?**

AB 197 (while noted in PPT appendix, it was not mentioned in the legislative summary):

AB 197 (signed by Governor Brown on September 8, 2016), includes a definition of “social costs” of GHG emissions as SEC. 3. Section 38506 is added to the Health and Safety Code, to read: “For purposes of this division, “social costs” means an estimate of the economic damages, including, but not limited to, changes in net agricultural productivity; impacts to public health; climate adaptation impacts, such as property damages from increased flood risk; and changes in energy system costs, per metric ton of greenhouse gas emission per year.”

An additional element from SB 350 which could be addressed with quantitative analyses from a SCT:

Among issues to be addressed by 2017 IRP’s: Section 454.52

(H) Minimize localized air pollutants and other greenhouse gas emissions, with early priority on disadvantaged communities identified pursuant to Section 39711 of the Health and Safety Code.

AB 327:

“The legislative language from AB327 for the NEM Successor Tariff required 2.10. “Total Benefits of the Standard Contract or Tariff **to All Customers** and the Electrical System are Approximately Equal to the Total Costs.” In considering this requirement, it is important to remember that proposed new section 2827.1 was completely rewritten near the end of the legislative session that adopted AB 327.8 Among the changes from the prior draft was **the elimination of all references to “nonparticipants.”** Decision 16-01-044 January 28, 2016, p. 54. Therefore, while the 2013 NEM study used the RIM, that would be an inappropriate primary test for the NEM Successor Tariff proceedings. The NEM public tool supported inclusion of TRC and SCT values.

#### **Did staff overlook any background?**

Decision 16-01-044 January 28, 2016 (NEM Successor Tariff)

“The point of this analysis is not to cast doubt on the RIM test, but to be clear about the place it has in considering proposals for a successor tariff. It is plain that the conventional way of looking at costs to nonparticipants is not fully functional for the NEM successor tariff.

These results show, somewhat surprisingly, that there is almost no version of a NEM successor tariff that does not have higher costs than benefits to nonparticipants, and to a significant degree. This could mean that there is no way to have a balanced NEM successor tariff. Or it could mean, **as we conclude**, that the large majority of costs of the NEM successor tariff are currently known and relatively easy to quantify, **while the benefits to the electrical system and all customers are not fully known, and thus not able to be put in equivalent form on the other side of the equation with costs.**

Since the Commission’s first responsibility under Section 2827.1 is to see to the continued growth of customer-sited renewable DG, RIM results that suggest costs to customers not siting renewable DG on their premises **also suggest that further investigation of benefits and costs is warranted.** Decision 16-01-044 January 28, 2016, p. 58 (emphasis added).

#### **Stakeholder question: Comments on these options**

I urge the CPUC to select option one i.e. to continue a science-based process to “Develop a Societal Cost Test, and adopt it for use consistently across all DER proceedings”, as the primary test. This would include proceedings such as the 2019 revisiting of the NEM Successor Tariff, in addition to the IDER and IRP proceedings.

As described in the introductory comments above, it is not correct to say that this prioritizes environment over rate impact. Ratepayers are already affected by the externalized health impact costs and the costs due to climate change. As discussed above, it is feasible and common to determine appropriate monetization of health and carbon damage costs. Thus the points raised by staff to suggest this is not a reasonable approach should not be accepted. Indeed, one could make the argument that not using the Societal Cost Test prioritizes stakeholder profit over the public and ratepayers.

#### **Comments on these SCT methodology issues**

**What specific method (what to include)**

Since some of the decisions facing the CPUC will require comparing e.g. gas generating capacity to preferred resources, a cost-effectiveness analysis which accurately and fairly considers the true costs of the policy alternatives should be the primary basis for decision-making. Therefore IDER should not restrict the scope of this discussion to a comparison of avoided costs/mitigation costs among renewable alternatives as presented in the straw proposal. The true societal cost test which includes credible estimates of the damage costs should be the primary approach.

**How CPUC should use the test in its evaluations / decision-making**

The Societal Cost Test including damage costs should be the primary basis for CPUC decision making in which one alternative is fossil fuel generation. E3's current proposal using mitigation/ avoided cost may be a useful additional analysis to differentiate among different strategies to achieve GHG goals (assuming not only cost but scale and reliability are considered).

**Specific SCT method:****What discount rate?**

It has been argued that in the face of the urgency of climate change, discounting is not an appropriate strategy. Whatever rate is used should be subjected to a sensitivity analysis documenting the impact of using different rates. This is particularly important for analyses using the Program Administrator test since the utilities may use a particularly high discount rate (see NEM Public Tool discount rates)

**What direct effects should be included?**

Damage from air quality health effects should be included. Exposure to particulate matter (PM) causes asthma and other respiratory illnesses, cancer, and premature death.<sup>1</sup> Nitrous oxides (NO<sub>x</sub>) react with volatile organic compounds in the atmosphere to form ozone, which causes similar health problems.<sup>2</sup> One source of estimates of the health co-benefits from reductions in criteria pollutants was developed by the EPA in conjunction with the Clean Power Plan. These benefit estimates are relatively recent, as they were developed as part of the technical analysis for the proposed rule. Additionally, the figures are specific to California, taking into account population density and emissions factors specific to the California electric generation fleet. Alternatively, figures from the National Academy of Sciences report Hidden Costs of Energy may be appropriate, although the report was published in 2010.

Social cost of carbon should be included; the Energy Division has identified several appropriate sources which should be further considered. Use of the current Cap and Trade value is inappropriate as it does not reflect an accurate valuation of the damage cost.

There are additional benefits of Distributed Energy Resources such as decreased water use, system resiliency and reliability. Consideration of these benefits would be appropriate.

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<sup>1</sup> EPA, Regulatory Impact Analysis for the Proposed Carbon Pollution Guidelines for Existing Power Plants and Emission Standards for Modified and Reconstructed Power Plants (June 2014), p. 4-17 ("CPP Technical Analysis"). Available at <http://www2.epa.gov/sites/production/files/2014-06/documents/20140602ria-clean-power-plan.pdf>

<sup>2</sup> *Id.*



October 4, 2016

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**RE: Informal Comments on Societal Cost Test Methodology**

The California Solar Energy Industries Association (CALSEIA) greatly appreciates your hard work developing methodology for incorporating societal benefits into cost-benefit methodology used in Commission decision making. CALSEIA submits these informal comments in response to the Societal Cost Test Workshop on September 22, 2016.

Incorporating societal benefits into CPUC decision making in a meaningful way is long overdue, and the Commission should not let the perfect be the enemy of the good. Although it is appealing to make sure that all societal benefits are included in cost-benefit methodology, it is not practical to think there will be sufficient consensus around all components of societal benefits. If a methodology has more intense opposition, it will be harder for the Commission to rely on the methodology for decision making. CALSEIA believes it is more important to incorporate societal benefits into cost-benefit calculations that carry weight in decision making than to have more comprehensive analyses that carry little weight.

In this light, CALSEIA is strongly supportive of Energy Division's suggestion to:

- Add the social cost of carbon to the Total Resource Cost test and require that test to be used as the principle test across all DERs.
- Have a more comprehensive Societal Cost Test that is used for advisory purposes. This should include water consumption impacts, land use impacts, health impacts, and economic development benefits.

Including non-energy benefits in cost-effectiveness methodology that impacts utility rates has been criticized as not aligning who pays for the costs with the people who create the costs. This is a red herring when viewed within the Commission's jurisdiction. Ratepayers are effectively all people, and people's contributions to climate and health impacts from air pollution coincide strongly with electricity and natural gas consumption.

Distortions can arise when comparing impacts and responses across the entire economy. For example, a trucking company that has mostly transportation fuel impacts would get off easy if all mitigation efforts were in the electricity sector. However, it is not the Commission's job to do this comparison. Once the ARB sets targets for each sector, the Commission must determine the best policies within the electricity and natural gas sectors. Within these sectors, distortions between cost causation and cost responsibility are minimal. This reinforces the justification for using some form of societal cost test as the principal test for Commission decision making.

CALSEIA also believes it is appropriate to use the damage cost rather than the marginal abatement cost to calculate societal benefits. In either approach, the Commission will be able to compare policy scenarios against each other. The marginal abatement cost approach is solely a policy scenario comparison method, whereas the damage cost approach is both a true cost-effectiveness test and scenario comparison tool. To use the damage

cost approach for scenario comparison, the best scenario would simply be the one with the greatest total cost-effectiveness.

Using the damage cost approach would put the Commission in line with the Air Resources Board. AB 197 requires the ARB to consider “economic damages, including ... climate adaptation impacts” in the development of all policies related to greenhouse gas reduction. In order to promote consistency in decision making metrics across state agencies, as the Commission refines its cost-effectiveness analyses it should use a methodology that is consistent with that of the ARB.

Thank you again for moving this conversation forward. We look forward to next steps.

Sincerely,

/s/ Brad Heavner

Brad Heavner  
Policy Director

**From:** emainland <emainland@comcast.net>  
**Sent:** Tuesday, October 04, 2016 3:56 PM  
**To:** Bull, Pierre  
**Subject:** Comments: Societal Cost Test Workshop, September 22, 2016

Pierre Bull  
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Mr. Bull:

Please accept and post the following comments on CPUC's Social Cost Test Workshop which I attended September 22, 2016.

The workshop took place against the background of voluminous scientific warnings that we must do much more than we are doing to decarbonize the energy economies of the United States and the world if we are to avoid devastating climate outcomes, described by climate scientist Kenneth Anderson as "incompatible with an organized global community". One authority among many pointing out the need to move faster is David Roberts, <http://www.vox.com/2016/10/4/13118594/2-degrees-no-more-fossil-fuels>. Moving faster means ceasing all new fossil fuel development, expeditious phase-out of fossil fuel electricity generation, and immediate and rapid decline in carbon emissions. The crisis is immediate, severe and worsening with each passing month and year.

The SCT Workshop dealt at length with ways to "discount future costs and benefits". It is unclear how any discount rate can capture the quite probable risk of infinite climate cost of unchecked greenhouse gas emissions — that is, collapse of the economy, organized society or even civilized human existence on the planet. Discount rates discussed in the workshop appear weak, arbitrary, artificial and unsuited to the climate crisis. Discounting may not even be an appropriate strategy.

Similarly, the apparent perceived preference of Workshop's staff and consultants of "abatement cost" rather than "damage cost" as the social cost of carbon is unjustified. CPUC should use damage cost as the primary basis for CPUC decision-making. It is demonstrably feasible to acquire and use incidence and cost numbers from highly credible sources for, e.g., adverse health effects of criteria pollutants emitted by fossil fuels. See, e.g., EPA's health co-benefits from reductions in criteria pollutants developed under the Federal Clean Power Plan, or the National Academy of Sciences' *Hidden Costs of Energy* (2010).

E3's current proposal uses California's clean energy targets and mandates as an envelope and then within that envelope uses mitigation/ avoided cost to evaluate different policies for IDER. Embedded is the apparent assumption that renewable options cannot compete with fossil fuel generation on an economic basis and options can never rise above the mandated renewable policy goals, despite the urgency of climate change action. However if the actual *direct costs* in standard cost-effectiveness practice of fossil fuels are included — that is, health impacts and a realistic cost of carbon — renewables and preferred resources may well compete effectively. See the various Value of Solar studies which incorporate damage costs and seem to support this argument. The on-going plunge in the cost of renewables and efficiency is dramatic.



I hope that all those interested will look at Joe Romm's video "*Almost Everything You Know about Climate Change Solutions is Outdated*". <https://thinkprogress.org/video-almost-everything-you-know-about-climate-change-solutions-is-outdated-a1dc0380b96#.gtcxa632e>. Romm draws on some of the most credible and sophisticated energy and financial institutions to look at the rapidly improving cost picture for renewables and associated technologies.

Although EPA's social cost of carbon is an excessively low estimate and should not be lightly used, at least it is a well-vetted source, is understood to be a *minimum* estimate of damage, and is used already in the NEM public tool together with the cost of health impact of criteria pollutants. It is hoped a better estimate can be found and used.

At the workshop, some participants unfortunately seemed to be inclined to use a high social cost of carbon as a "threshold" or "screener" and dismissed SCT because it could include solutions as cost-effective that are not (a "straw man" to discredit a social cost test).

Where fossil fuels are one option or arm of a decision tree, *direct* damage cost of fossil fuels (health impact, SCC per ton CO<sub>2</sub>) *must* be included as part of the cost of the fossil fuel option. Since CPUC represents the public, it should not allow fossil fuel companies to externalize those costs on the ratepayers to the benefit of the companies' shareholders. A cost-effectiveness analysis can give CPUC a way to estimate *all direct costs* from traditional pollutants in burning fossil fuels. Current costs of climate change stemming from burning fossil fuels are externalized and borne by ratepayers, not shareholders.

A social cost test should apply broadly to all pending CPUC decisions (e.g. NEM ST 2019, SONGS replacement, IDER and IRP proceedings). Clarity should be provided on how to handle decisions that are still under appeal.

Mitigation costs can serve as useful analyses to differentiate among strategies to achieve greenhouse gas reduction goals, assuming that not only costs but scale and reliability are included as additional to, not instead of, damage costs. CPUC will be comparing gas generation to preferred resources, so any analysis should fairly and realistically reckon true costs of proposed options; IDER should not limit the reckoning to merely avoided costs of renewable alternatives presented; real societal costs testing should comprise valid estimates of damage costs as the primary method.

The Workshop presentation seemed to be skewed toward justifying and exculpating the costs of natural gas generation. This is the wrong slant to follow. The current system externalizes damage costs onto ratepayers who get asthma and lung disease, not shareholders, who benefit from the artificially depressed cost of fossil fuels. Correct accounting benefits ratepayers. Ratepayers also benefit if IOU's don't end up with stranded assets of contracts for new gas generation capacity.

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# INDEPENDENT ENERGY PRODUCERS

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October 4, 2016

## INFORMAL POST-WORKSHOP COMMENTS OF THE INDEPENDENT PRODUCERS ASSOCIATION ON THE SOCIETAL COST TEST

As requested by the Energy Division, the Independent Energy Producers Association (IEP) submits these informal post-workshop comments on the Societal Cost Test (SCT). IEP will offer some general observations regarding the requirements of Senate Bill (SB) 350 and the integration of environmental impacts of resource development in the context of integrated resource planning (IRP). Next, we present some concerns related to the SCT and the Damage-Cost Function. Finally, we recommend some guiding principles on cost-effectiveness tests and the integration of environmental considerations into resource planning.

When the Commission reviews and approves the IRP plans of its jurisdictional load-serving entities (LSEs), a balancing of various goals and objectives will be required. This need to balance goals and objective that are not always consistent has necessitated consideration of tools to help enable the Commission to meet its statutory obligations, including consideration of various cost-effectiveness tests. As noted in the staff research paper presented at the Workshop, the Commission has a long history of using various cost-effectiveness tests to compare the impacts of different planning scenarios and resource selections. While the Commission's Standard Practice Manual (SPM) delineates five different cost-effectiveness approaches, including the SCT, the Commission has so far applied the SCT only in fairly narrow circumstances, *e.g.*, to determine the cost-effectiveness of resources associated with the Self-Generation Incentive Program.

The purpose of the workshop was to consider whether the SCT approach should be applied in the context of the Integrated Distributed Energy Resources (IDER) proceeding. However, the issue of cost-effectiveness tests in general and the SCT approach in particular likely will extend well beyond the IDER proceeding into the IRP and Renewables Portfolio Standard (RPS) proceedings, where similar questions about comparing the cost effectiveness of various resources arise. Accordingly, a critical question should be whether the procedural costs of implementing any major revision or elaboration of the cost-effectiveness test most broadly used by the Commission (the Total Resource Cost test) is warranted in light of the incremental gains that would result from various approaches to the SCT.

### I. ROLE OF SECTION 454.52

SB 350 added section 454.52 to the Public Utilities Code,<sup>3</sup> which directed the Commission to adopt a process for each LSE, as defined in section 380, to:

- meet the greenhouse gas (GHG) emission reduction targets established by the California Air Resources Board (CARB);
- procure at least 50% of annual energy sales from eligible renewable energy resources by December 31, 2030;
- enable each electrical utility to fulfill its obligation to serve its customers at just and reasonable rates;
- minimize impacts on ratepayer bills;
- ensure system and local reliability;

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<sup>3</sup> All section references are to the Public Utilities Code.

- strengthen the diversity, sustainability, and resilience of the bulk transmission and distribution systems, and local communities;
- enhance distribution systems and demand-side energy management; and
- minimize local air pollutants and other greenhouse gas emissions, with early priority on disadvantaged communities
- use of the any cost-effectiveness tool, particularly the SCT, must be considered in the broader context of all of the goals of SB 350.

## II. ROLE OF SECTION 701.1

The staff research paper points to section 701.1 as the key statutory underpinning for the Commission's consideration of a cost-effectiveness test in resource planning that integrates valuation of environmental costs and benefits. The staff indicates that consideration of the SCT as the means by which the Commission measures the cost-effectiveness of portfolios or individual resources derives from section 701.1(a)(1), which in staff's view establishes that the principal goal of electric and natural gas utilities' resource planning and investment shall be to minimize the cost to society.<sup>4</sup>

Importantly, section 701.1 contains two additional subdivisions that also should guide consideration of the appropriate cost-effectiveness test. When the Commission determines the value of air quality costs and benefits associated with existing electric powerplants subject to a tradable emissions allowance program (e.g., the CARB AB 32 program) or subject to an emissions tax, section 701.1(d) establishes that the Commission *shall not assign a value or cost to that residual pollutant*.<sup>5</sup> Moreover, in determining the value of air quality costs and benefits, section 701.1(e) establishes that the values shall not be used by the Commission, in and of themselves, to require early decommissioning or retirement of an electric powerplant that complies with applicable prevailing environmental regulations. These provisions appear to be designed to

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<sup>4</sup> Section 701.1(a)(1): The Legislature finds and declares that, in addition to other ratepayer protection objectives, a principal goal of electric and natural gas utilities' resource planning and investment shall be to minimize the cost to society of the reliable energy services that are provided by natural gas and electricity, and to improve the environment and to encourage the diversity of energy sources through improvements in energy efficiency and development of renewable energy resources, such as wind, solar, biomass, and geothermal energy.

<sup>5</sup> Section 701.1(d): In determining the emission values associated with the current operating capacity of existing electric powerplants pursuant to subdivision (c), the commission shall adhere to the following protocol in determining values for air quality costs and benefits to the environment. If the commission finds that an air pollutant that is subject to regulation is a component of residual emissions from an electric powerplant and that the owner of that powerplant is either of the following:

- (1) Using a tradable emission allowance, right, or offset for that pollutant, which (A) has been approved by the air quality district regulating the powerplant, (B) is consistent with federal and state law, and (C) has been obtained, authorized, or acquired in a market-based system.
- (2) Paying a tax per measured unit of that pollutant. The commission shall not assign a value or cost to that residual pollutant for the current operating capacity of that powerplant because the alternative protocol for dealing with the pollutant operates to internalize its cost for the purpose of planning for and acquiring new generating resources.

designed to avoid placing electric power plants in “double-jeopardy” with regard to the state’s environmental rules and regulations.

### **III. CONSIDERATION OF ENVIRONMENTAL IMPACTS IN PERMITTING IN TODAY’S ENERGY ARENA**

As noted in the staff research paper, utility regulators traditionally have focused on the direct economic impacts of a new resource when assessing its cost-effectiveness. The factors used in the direct impacts assessment include the capital costs, operating costs, changes in

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<sup>4</sup> Section 701.1(e): (1) The values determined pursuant to subdivision (c) to represent costs and benefits to the environment shall not be used by the commission, in and of themselves, to require early decommissioning or retirement of an electric utility powerplant that complies with applicable prevailing environmental regulations.

(2) Further, the environmental values determined pursuant to subdivision (c) shall not be used by the commission in a manner which, when such values are aggregated, will result in advancing an electric utility’s need for new powerplant capacity by more than 15 months.

utility revenue streams, and the avoided cost of providing the services. Other indirect factors such as environmental impacts are addressed separately but thoroughly in the siting and permitting process by other regulatory agencies such as the California Energy Commission (CEC) or local planning agencies.

Fundamentally, the environmental impacts of adding resources in California are addressed up-front in the permitting process, before the plant gets built, consistent with the California Environmental Quality Act (CEQA) or the federal National Environmental Policy Act (NEPA). For example, the CEC Environmental Assessment in siting cases typically assesses the following impacts<sup>5</sup>:

Air Quality	Biological Resources	Cultural Resources and Native American Values	Hazardous Materials Management	Land Use
Noise and Vibration	Public Health and Safety	Socioeconomics and Environmental Justice	Soil and Water Resources	Traffic and Transportation
Transmission Line Safety and Nuisance	Visual Resources	Waste Management	Worker Safety and Fire Protection	Geology, Paleontology and Minerals

These existing processes thoroughly consider the environmental impacts of new electric generation, including air quality impacts, water impacts, and environmental justice impacts. These regulatory processes identify the environmental impacts associated with the addition of renewable and thermal resources, and they require mitigation of significant adverse effects. Effectively, these multi-layered regulatory processes require developers to offset the significant environmental impacts with mitigation measures, resulting in a net neutral environmental impact from a societal perspective (unless the overall benefits outweigh the

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<sup>5</sup> See, *e.g.*, CEC Docket 09-AFC-10, Staff Assessment and Draft Environmental Impact Statement, Rice Solar Energy Project, October 2010.

adverse environmental impacts, resulting in the permitting agency issuing a statement of overriding considerations). Importantly, the cost of environmental mitigation becomes a capital or operating cost for the project, costs that must be recovered directly or indirectly from energy markets. As a result, market-clearing prices reflect the cost of environmental mitigation associated with incremental power plant operations.

#### IV. SUMMARY OF WORKSHOP PRESENTATIONS ON THE SOCIAL COST TEST

The SCT is designed to incorporate the indirect benefits associated with various resource types into the cost-effectiveness test applied by the Commission. Based on the workshop presentations, the indirect benefits include:

- ***Social Benefits:*** Social benefits are indirect benefits that are presumed to accrue to all members of society. These benefits include the social benefits of carbon reduction or avoidance, the economic impacts and job creation associated with resource types, and the effects on public safety and health.
- ***Utility Benefits:*** Indirect benefits accruing to the utility including improved customer calls and improved customer service.
- ***Participant Benefits:*** Indirect benefits that accrue to the participant include improved ability to manage energy use and improved customer satisfaction. Notably, the indirect factors included in the SCT methodology tend not to be

grounded in direct measurement; rather, these factors reflect attitudinal survey inputs that may inform program design but they are not typically used in cost-effectiveness determinations comparing resource portfolios or investments. As reported in the staff research paper, the SCT has never been fully operationalized by the Commission for general use and comparison across technology types. While the SCT has been employed to consider cost-effectiveness in the Self- Generation Incentive Program), IEP is not aware that the SCT has been employed in a

proceeding where the purpose is to assess and evaluate the cost-effectiveness of alternative, competing resources, as would be the case in the IDER and IRP proceedings.

As part of its workshop presentation, Energy+Environmental Economics (E3) describe the SCT as a secondary test that measures the costs of carbon emissions to society as a whole, above and beyond the costs to the utility and its ratepayers. In this regard, E3 highlights three primary inputs into the SCT methodology: (a) the social discount rate, (b) the health costs of electricity production, and (c) environmental costs “above current market price forecasts.” In this respect, the SCT focuses on the costs and benefits of power generation “not captured by the market.” These benefits include avoided environmental damage, increased system reliability, fuel diversity, and various “non-energy benefits” (NEBs) not captured in energy markets. These NEBs can include avoiding the cost of CO<sub>2</sub> emissions above the monetized value of allowances in a carbon market (*e.g.*, CARB’s Cap and Trade Program); the value of reduced water use and waste streams; the benefit of reduced land use impacts; the benefits of non-energy lifestyle comfort or productivity of participants; reduction of the life-cycle costs of electricity and natural gas consumption; and the impact (positive/negative) on low-income programs and communities.

As a potential component of the SCT, E3 discussed the pro and cons of the Damage-Cost Function approach versus the more conventional GHG Abatement/Compliance- Cost Function approach. Essentially, the Compliance-Cost Function measures the marginal GHG abatement cost. Theoretically, the market clearing price of the AB 32 Cap & Trade Program (C&T) represents the marginal GHG abatement cost for the electric sector. On the other hand, the Damage-Cost Function derives an estimate of the damage to society of GHG emissions, including an imputed value for future changes in agricultural production, hydrology, sea level, human health, ecological health, and extreme weather severity and frequency. The Damage-Cost Function would derive a number that would supplement the market price of

carbon, under the assumption that the market price of carbon does not fully reflect the actual marginal cost of mitigation.

**V. CONCERNS REGARDING THE SOCIAL COST TEST**

IEP is concerned that the SCT, if adopted now, will impede timely decision-making necessary to meet key policy objectives and ensure electric grid reliability. Moreover, due primarily to its complexity and reliance on inputs not fully screened by policymakers, academics, and stakeholders, the SCT approach risks undermining transparency in planning and resource selection, which is critical to ensuring that the goal of minimizing impacts on electric ratepayer bills as prescribed in section 454.52 (*i.e.*, SB 350.). Below are more specific comments on the SCT as presented at the workshop.

**A. The SCT May Not Conform to the Public Utilities Code**

The SCT methodology generally and the Damage-Cost Function specifically appear inconsistent with section 701.1. While section 701.1 directs the Commission to calculate a value for any costs and benefits to the environment, including air quality, subdivisions (d) and (e) prescribe limits on that calculation: namely, the Commission shall not assign a carbon value or cost to residual pollution for the operating capacity of certain existing power plants (subdivision (d)), and the carbon values established by the Commission shall not be used in and of themselves to require early decommissioning or retirement of an electric utility powerplant that complies with applicable prevailing environmental regulations (subdivision (e)). Taken together, these provisions suggest that in planning, and certainly in procurement, power plants that comply with applicable prevailing environmental regulations should not face additional barriers associated with environmental or carbon adders.



**B. Double-counting of Environmental Impacts Considered in the CEQA Process**

Section 701.1(d) appears to be intended to ensure that electric generators do not face regulatory double-jeopardy with regard to siting and operating in California. Electric generators in California are subject to CEQA, which considers air quality, land, water, environmental justice, and other impacts. In cases impacting federal lands, the federal NEPA may govern generation siting.

Electric generators are required in the permitting process to mitigate significant environmental impacts as directed by the appropriate regulatory agency. As a result, once permitted, electric generators have an insignificant net impact on the environment from a regulatory and social perspective (or provide significant benefits that override environmental impacts that cannot be mitigated). Moreover, electric generating units that emit carbon also must adhere to the CARB Mandatory Reporting Regulations and GHG Emissions Reduction Regulations (*i.e.*, the C&T program.). Thus, even in the narrow construct of carbon emissions reduction, the cost of carbon mitigation is priced into the operational costs of existing electric generation facilities and fully valued by new and existing resources when they bid in competitive procurements. Imposing a carbon adder or damage function as part of a cost-effectiveness test has the effect of double-counting the environmental impacts that have been mitigated through the CEQA process and, thus, imposing an unreasonable additional burden on resources in the

planning and procurement contexts.

**C. Complexity and Need for Transparency Impedes Timely Decision-making**

To be fair, application of a STC, particularly the proposal to conduct life-cycle accounting in the case of the Damage-Cost Function, should be competitively neutral. To achieve this outcome, the benefit/cost assessment would need to apply broadly and comparably across all technologies on an incremental basis. Moreover, the development of the STC would

need to be conducted in an open and transparent manner in which all stakeholders have an opportunity to participate. Any such proceeding will be complex, time-consuming, and a significant drain on the limited time and resources of Commission staff and stakeholders. IEP is concerned that this process will impede and not improve the transparency and openness of the Commission's decision-making.

**D. Need for Constant Updates To Address Changing Circumstances**

A highly complex planning tool such as the proposed STC and the associated Damage-Cost Function demands a high level of precision to achieve the myriad resource goals prescribed in sections 454.52 and 701.1. To be of value, the mechanism must be continuously updated with data from an increasingly dynamic world. While a high level of precision is demanded by the STC tool, it remains questionable whether planners can achieve and retain over multiple planning cycles and procurement activities the requisite level of precision to ensure fair application and, importantly, timely decision making. Moreover, planners and utilities do not need such a high level of precision to develop useful portfolios of resources to meet public policy objectives, including carbon reduction goals.

**VI. CONCERNS REGARDING THE "DAMAGE-COST FUNCTION" APPROACH**

As noted above, the Damage-Cost Function includes social costs related to health, reduced agriculture productivity, and sea level rise. E3 suggests that the damage-cost approach is appropriate for meeting the CARB mandate for the electric sector, while the compliance-cost

approach is appropriate for an IRP process.

IEP has a couple of observations and concerns. First, E3 effectively is recommending employing two discrete mechanisms in parallel. Moreover, this proposal likely doubles the time and resources required of Commission staff and stakeholders to remain engaged in this critical aspect of planning and procurement. Only one cost-effectiveness test is necessary to achieve the public policy goals set by policymakers.

Second, IEP has concerns regarding the readiness, transparency, and utility of the damage-cost function approach. But more importantly, this level of complexity is not required by statute or necessitated by California's policy goals, including IRP. A path forward based on this level of complexity will hinder transparency and public participation and will ultimately delay timely decision-making. Particularly in the damage-cost function approach to determining cost-effectiveness, issues like water savings, reduced land impacts, sea level rise, and changes in agricultural production are incredibly complicated matters to assess in a timely and fair manner across a broad range of technologies, some of which are low- or zero-carbon emitting. For

example, sea level rise undoubtedly will have negative impacts of some geographical regions and it may have positive effects on others. Even factors like "reduced land impacts" (*e.g.*, associated with deferring a utility-scale solar project) may trigger unintended consequences that are difficult but necessary to measure in the SCT tool (*e.g.*, when the land on which the deferred solar project would have been sited is instead used for another commercial purpose, such as a retail mall).

The details and interactions of development decisions are highly complex. They are unique by geographic area, and they are changing yearly. The Commission and other regulatory agencies are not equipped to properly, transparently, and accurately address these dynamics.

Third, the costs and benefits of projects and technologies change in unpredictable ways over time. For example, rooftop solar initially had the value of offsetting demand during expensive peak hours, but now it creates costs in the form of curtailments and negative prices that are borne by other entities which, consequently, may trigger indirect environmental impacts of some unknown magnitude. IEP is not convinced that the complexity of the SCT approach, particularly application of the Damage-Cost Function, will provide reliable results, particularly in the 3-10 year time horizon. Nor is IEP convinced that the added complexity of the SCT

(versus the Total Resource Test) is warranted given the dynamic, changing nature of California's energy sector.

Fourth, as noted above, CEQA and NEPA require societal benefits (mitigation) to at least roughly offset the costs of projects. However, behind-the-meter devices are not usually required to go through the CEQA process and do not offer this form of offset for their environmental costs. To affect true and accurate cost comparisons on a societal basis, particularly in the context of the Damage-Cost Function, a significant amount of time and resources will be required to ensure that the cost-effectiveness test treats different resources and resource types in a comparable, reasonable manner.

## **VII. GUIDING PRINCIPLES FOR SELECTING A COST-EFFECTIVENESS TEST**

The Societal Cost Test workshop focused on the extent to which application of the SCT is consistent with statutory law, particularly sections 454.52 and 701.1, and past and present Commission procedures. IEP recommends the following principles to guide the selection of the appropriate cost-effectiveness test.

### **A. Keep it Simple**

The Public Utilities Code prescribes criteria for developing the final plan and for considering the cost-effectiveness of resources in the IRP process. Sections 454.52 and 701.1 establish several criteria, including some not recognized in the workshop. Overall, however, IEP recommends that the Commission "keep it simple." The California energy world is tremendously dynamic and ever-changing. Unprecedented environmental progress in energy generation technology and powering the electric system has been made over the past 15 years. The methodologies employed by the Commission during this period to determine the cost-effectiveness of planning portfolios and investment have worked well. These methodologies are inherently complex, and they require considerable commitments of time and resources. The incremental increase in time and resources diverted to developing a practical STC methodology

for future use will be significant. The incremental environmental and social benefit from such a change has not yet been shown to be warranted.

**B. The Cost-Effectiveness Test Employed by the Commission Should Be Proven, Verified and Based on Reliable Data Inputs**

The IRP process is likely to be more complex than legislators and policymakers envision, particularly in light of the increasingly dynamic energy world. Thus, the Commission should be cautious about adopting a new, unproven, and unverified methodology to test the cost-effectiveness of individual resources. Certainly the complexities associated with the proposed SCT approach, including the Damage-Cost Function, raise a number of issues related to data collection validation. The Commission should not adopt the SCT cost-effectiveness methodology until the methodology, data inputs, and other details have been fully vetted among stakeholders and academics.

**C. Cost-Effectiveness Test Should Assess the Incremental Impacts of New Resources Using a Common Baseline and Methodology**

The Commission's cost-effectiveness test for new resources should employ a common baseline. The Commission's cost-effectiveness test should assess the incremental impacts of new resources (*e.g.*, on an MWh basis) against the status quo, and this methodology should be applied consistently and uniformly across resource types.

**VIII. CONCLUSION**

Any methodology chosen for determining the cost-effectiveness of resources, in either the planning or procurement context, should be relatively simple to apply; it should reflect a proven methodology based on verified metrics; and it should focus on the incremental impacts of new resource additions that may be more easily quantified and compared across broad portfolios or applied to specific resources. IEP is concerned that the SCT approach moves the Commission away from these important goals. As a result, the SCT will impede timely decision-

the SCT approach risks undermining transparency in planning and resource selection, which is critical to ensuring that the goal of minimizing impacts on electric ratepayer bills. In this context, the SCT is not sufficiently developed or properly vetted to consider its use at this time. Accordingly, IEP recommends that the Commission continue its historical pattern when evaluating the cost effectiveness of portfolios and investments: focus on direct costs and benefits that are more readily measured and verified, and avoid the trap of pursuing the chimera of perfection suggested by the SCT.

Respectfully submitted,

A handwritten signature in black ink that reads "Steven Kelly". The signature is written in a cursive, flowing style with a large, stylized "K" and a long, sweeping underline.

Steven Kelly  
Policy Director

cc: Brian Cragg, Goodin MacBride, Squeri & Day, LLP  
Attorney for the Independent Energy Producers Association

It is evident from the excellent, comprehensive overview given by ED staff at the September 22<sup>nd</sup> Societal Cost Test workshop that the Commission has had the intention of addressing societal costs of fossil fuel consumption for many years now. Further, the recent Decision in the NEM proceeding (14-07-002) makes it clear that the Commission expects that a deeper exploration of the costs and benefits of DER will take place in this IDER proceeding, along with the Rate Design Window and the Distribution Resource Planning proceeding. **The time is therefore ripe to take this issue on in earnest.**

The data presented by E3 at the workshop (and further work yet to be completed) is useful to gain an understanding of the various historical views of societal costs, for context. However, it is incredibly evident from the wildly differing estimates and bases of calculating societal costs, the outcomes of which at times differed by orders of magnitude, show the difficulty---and seeming arbitrariness---of the historical “trys” of such calculations.

**Is it possible that the processes themselves, the types of undertakings often used in quantifying societal costs and benefits has been generally approached in the wrong ways altogether?**

I recently read an essay called “Open Secrets: Enron, Intelligence, and the Perils of Too Much Information” by renowned author Malcolm Gladwell which was originally published in *The New Yorker* on January 8<sup>th</sup>, 2007. In this essay, Gladwell studies the distinction between “puzzles”---which are solved by uncovering more and more precise data until the puzzle is solved---and “mysteries,” for which resolution is not necessarily achieved through finding additional data, but instead, finding new ways of comprehending or synthesizing---or even distilling down---existing, often already-public data. At times, a plethora of data can instead, at times, ironically only serve to obfuscate the essentially important themes or conclusions. From the Gladwell essay (in the 2007 context):

*“The national security expert Gregory Treverton has famously made a distinction between puzzles and mysteries. Osama bin Laden’s whereabouts are a puzzle. We can’t find him because we don’t have enough information. The key to the puzzle will probably come from someone close to bin Laden, and until we find that source, bin Laden will remain at large.*

*The problem of what would happen in Iraq after the toppling of Saddam Hussein was, by contrast, a mystery. It wasn’t a question that had a simple, factual answer. Mysteries require judgement and the assessment of uncertainty, and the hard part is not that we have too little information but that we have too much.”*

Of course, Gladwell’s thesis for the essay is that the Enron scandal was a mystery, and not a puzzle. The issues were all to be found inside a mountain of public filings...one

simply had to comprehend and synthesize the information in an altogether new way. Solving mysteries requires a quantum leap in thinking.

And of course, I am going to make the argument here that unlike Distribution Resource Planning which is a complex but solveable puzzle, the Societal Cost Test as being explored in this IDER proceeding is instead a mystery---one which may be solved through new thinking about sourcing of DER as well as rate design policy.

It may be helpful now to recall the reasoning behind the “regulatory compact”: the opportunity for public utilities to earn a return due the *inherent “public benefit”* derived from a reliable (indeed obligatory) supply of electricity to serve the needs of the portions of society which such IOUs serve. This is a form of “reward” for their service. As the electric grid becomes increasingly network-based, generation both cleaner and more localized, and public expectation of energy options more varied, the IOUs’ traditional earnings opportunities are clearly coming under threat.

**This is “exactly backwards”.** The IOUs should instead be increasingly “rewarded” for what is almost universally accepted as a healthier and more sustainable system: the societal benefit of moving away from a fossil-fuel-based system. **But how can this be fully achieved in a cost-effective fashion, without further “harming” ratepayers, and without turning traditional marginal-cost ratemaking on its head?**

In thinking about groups of citizens who have been harmed in some fashion, one’s first instinct would be to solve the problem through compensating those suffering from the consequences of the wrongdoing, which is certainly important. Consider citizens of an area where higher levels of cancer found in the public may be directly linked to an environmental cause. Yet it is obvious that simply compensating those harmed is not enough---new public policies must be implemented, and in some cases expensive new research conducted, to assure that the causes of the higher cancer rates are uncovered, and mitigated in the future. The highly-necessary public expenditure for such research institutions may come at a vastly greater cost than the compensation to the individuals affected.

Along these lines, it is very commendable that the Commission is exploring utility incentive mechanism tied to DER procurement which may defer distribution system needs in lieu of traditional infrastructure. And it’s especially exciting that new credit streams are also anticipated for customers able and willing to engage in various new forms of load management, with some special consideration for underserved communities (yet to be determined, but highlighted as necessary in AB 327).

But it seems fairly evident that even this paradigm is not “enough” to spur *wholesale* change for the IOU business model, there is likely an inadequate assurance of revenue to the utilities (and perhaps their creditors, of course) that the industry is on a new, fiscally- sustainable path.



Simultaneously, the IOUs have been clearly slow to embrace the idea of a societal cost/benefit test, apparently for two reasons:

*1---Societal costs are not easily quantifiable with precision, if in fact they can be quantified at all.*

*2---Any further compensation to the public which is increasingly harmed by fossil fuel pollution---or bill credits to those who are self-generating or otherwise offsetting portions of their load through net metering or energy efficiency---is seen as a deeper erosion of the traditional “regulatory compact” model, not to mention creating a cost- shift between customers who are not participants in such programs, perpetuating the cycle away from conventional sources.*

Generally speaking, the solar industry and certain empathetic advocates seem determined to refute these two factors as if they are puzzles which can be solved with more data and research. **But my thesis here is that the IOUs are actually *right* about the above issues---these are highly complex problems for which there may be no discrete answers obtainable in a linear (or strictly-logical) way.** Instead, we must think about these problems in an entirely new fashion and solve them as if they are Treverton-style “mysteries”: with quantum thinking, however contrarian it may seem to do so.

To illustrate, as a Sierra Club representative queried at the workshop, can one assign a value to the worst-case scenario of wholesale environmental collapse? I believe the answer is that, in essence, you can’t.

Yet, is there absolute benefit to the avoidance of such catastrophe, and incremental value (i. e. “public benefit”) for utilities to further commit to procurement of clean, cost- effective technologies, which simultaneously spur innovation and economic opportunity in a cascading fashion? **Without any doubt.**

An attempt to to bean-count the damage is useful to the extent that it provides a context. Ultimately, however, it will be necessary for the utility business model to undergo a further, radical shift away from the “regulatory compact” model and toward a foundationally-novel way to *compensate utilities for the enhanced inherent “public benefit”* which is based on the extent of their utilization or promotion of clean energy, including DERs---and the Societal Cost Test should provide a cornerstone to any such new model. This will be difficult to do without blurring lines with other proceedings, CEC endeavors and the CARB’s cap-and-trade system, but the Commission must start somewhere.

I believe the correct Societal Cost mechanism should create *the potential for* IOU earnings to be meted-out incrementally after simple but specific clean-resource penetration benchmarks are achieved, creating a “Pavlov’s dog” reaction (for instance) to DER procurement.

As one example of a such a model, over time and added incrementally in units of 1%, a Societal Benefit Public Purpose rate mechanism could be introduced for all non-CARE customers which would begin to (and eventually fully) compensate the IOUs for fostering a more socially and environmentally beneficial system, as explained further below. If achieved, the IOU disincentive which is so heavily apparent in CPUC filings by the utilities, expressed at times with passion and alarm, might instead turn to acceptance and enthusiasm.

In this hypothetical example, in addition to the IDER “incentive” payments for DER- sourced grid deferrals which stakeholders have argued for, a flat-percentage earnings adder would also (additionally) be introduced for ALL sourced or enabled clean energy resources, seen at a system-wide level, whether actualized as procurement or as discretely-quantifiable avoided load. Ideally, this would include all new RPS resources whether utility-scale or smaller, more localized renewable generation resources like NEM generation, energy efficiency, energy storage, electric vehicle use and load-shifting--- essentially ANY resource which avoids the need for fossil fuel-based generation. *[Note: while RPS resources are generally out-of-scope in the IDER proceeding, I’m including it in the discussion here due to the ongoing evolution of the Avoided Cost Calculator (ACC) which is evolving in part through the IDER Cost Effectiveness Working Group.]*

Because it is impossible to turn back the clock to at time when renewable resources were scant, such a mechanism could begin with the current baseline of approximately 25% renewable resources and the (roughly) existing NEM penetration levels, or 5% of aggregate customer peak load. The new system of counting which I recommend would not “up-end” the current RPS or NEM methodology, but instead create a new, universally-counted resource matrix solely for calculating the Societal Benefit Public Purpose Charge (SB-PPC), coordinated and accounted for in the ACC, which would include load “lost” to all clean DERs whether behind-the meter or not. Counting of such resources may be a challenging “puzzle”, but not impossible.

Let’s use solar net metering to demonstrate: So as not to “shock” the solar industry (or other resources) which currently enjoy an accepted societal incentive through existing credits or programs, the SB-PPC would add 1% to IOU earnings *once an additional 5%* of NEM penetration (or other behind-the-meter load offset) is achieved. To carry this further, if an additional 15% of DER resource penetration is achieved, the IOUs would then earn an incremental total of 3% from the SB-PPC.

Each individual DER proceeding would still evaluate the level of program cost or incentive necessary for sustainable growth of that resource. Additionally, an overall rate- impact cap could be set to protect consumers from any “lumpiness” in implementation.

**However, the reason that an SB-PPC should not represent a dramatic rate increase for paying customers is that, with ever-increasing levels of DER along with DER management, less and less utility-scale generation and associated transmission will need to be built, and in a slow but steady fashion, the utility is increasingly compensated for the VALUE of the service it provides in orchestrating and managing**

***the full portfolio of resources, instead of simply for “building things” (or, “buying things”).***

If an SB-PPC is successfully implemented, the IOUs will have a new and dependable earnings mechanism (in addition to the IDER grid-deferral “incentive”) that provides both fiscal certainty as well as a strong motivational factor for achieving the incremental benchmarks, *and the public will enjoy the myriad, snow-balling societal benefits which are commonly promoted by environmental advocates, not to mention the critically- important environmental benefits which drive many of us advocates to engage in CPUC proceedings.*

Again, this hypothetical model is just one example. The Commission should prompt the parties to this proceeding to develop models they deem as viable for consideration of incorporation of a Societal Cost Test. But regardless, I believe that any such prompting will encourage parties to consider both linear and non-linear (or quantum) concepts.

Because developing a Societal Cost Test may truly not be a “puzzle” that ever-more data can solve, but instead may in fact be a mystery....a mystery that may be solved with already-public data through creative thinking.

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**INFORMAL COMMENTS OF MARIN CLEAN ENERGY ON THE SOCIETAL  
COST TEST WORKSHOP**

**I. INTRODUCTION**

MCE appreciates the opportunity to submit informal comments on the Societal Cost Test Workshop (“Workshop”) in the Integrated Distributed Energy Resources (“IDER”) proceeding. MCE was the first operational ~~Community Choice Aggregator (“CCA”)~~ within California and currently provides generation services to approximately 250,000 customer accounts throughout Marin County, Napa County, and Cities of Richmond, San Pablo, Benicia, El Cerrito, Lafayette, and Walnut Creek. MCE’s customers receive generation services from MCE, and receive transmission, distribution, billing and other services from Pacific Gas and Electric Company. MCE is also the only CCA currently serving as an Energy Efficiency (“EE”) Program Administrator (“PA”) approved by the Commission to implement EE programs supported with ratepayer funds.

**II. MCE SUPPORTS A COMBINATION OF TESTS THAT ACHIEVE THE STATE’S ENVIRONMENTAL AND RATEPAYER PROTECTION POLICY GOALS**

MCE supports adjusting the cost-effectiveness framework at the CPUC to align ratepayer- funded programs with California’s mandate of carbon mitigation. MCE supports adopting a Societal Cost Test (“SCT”) that properly values the Social Cost of Carbon (“SCC”). To ensure that ratepayer funds are prudently spent, MCE supports the inclusion of a more traditional ratepayer

cost test. Specifically, MCE proposes that the SCT can be combined with the Program Administrator Cost (“PAC”). The blending of SCT and PAC will provide Commission with the ability to determine whether proposed programs will achieve the State’s environmental goals and produce energy savings at reasonable costs to ratepayers.

As demonstrated in the presentation by Energy + Environmental Economics (“E3”) at the September 22<sup>nd</sup> Workshop, California has significantly increased its focus on reducing GHG emissions. The Governor recently signed Senate Bill (“SB”) 32, which sets a new state policy goal to reduce GHG emissions to 40% below 1990’s emissions level by 2030.<sup>1</sup> Additionally, Assembly Bill (“AB”) 197 directs the Air Resources Board (“ARB”) to consider the social costs of GHG emissions when evaluating the cost-effectiveness of a proposed rule or regulation.<sup>2</sup> These policy changes signal the need to ensure that the tests applied to state programs will reflect these programs’ ability to cost-effectively reduce GHG emissions.

MCE supports the staff’s proposal to apply the SCT across various Distributed Energy Resources (“DER”) proceedings. At a minimum, the SCT should include a meaningful value for SCC, taking into consideration the costs of climate change mitigation that may be incurred if California does not achieve its carbon goals.<sup>3</sup> Other non-energy societal benefits may also be included, but should be limited to those that already existing cost-effectiveness methodologies. By incorporating these elements in the SCT, the test will become a clear indicator that helps PAs and the Commission determine whether a program will meet the state’s environmental policy goals.

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<sup>1</sup> Health and Safety Code Section 38566.

<sup>2</sup> Health and Safety Code Section 38562.5.

<sup>3</sup> Health and Safety Code Section 38506 defines social cost of carbon as “an estimate of economic damages, including, but not limited to, changes in net agricultural productivity; impacts to public health; climate adaptation impacts, such as property damages from increase flood risks; and changes in energy system costs, per metric ton of greenhouse gas emission per year.”

To ensure that ratepayer funds are prudently spent on programs, MCE recommends the Commission to adopt the PAC, rather than the Total Resource Cost (“TRC”). This change is intended to provide insight into whether a program’s costs are less than the conventional generation resources the PA would have to procure to meet customer demand. MCE acknowledges that the Commission has traditionally employed the TRC test to determine some programs’ cost- effectiveness, most notably the EE programs. Though the TRC may have been appropriate when avoided cost of generation was the primary consideration, it serves as a disincentive to more comprehensive investments by factoring in the cost to a program participant. However, these more comprehensive projects are necessary if the state is to achieve its targets for carbon mitigation.<sup>45</sup>

The PAC, unlike the TRC, does not consider the out-of-pocket expenses consumers have to make to adopt a DER. If the Commission’s goal for adopting a test is to determine the reasonableness of the use of ratepayer funds, the PAC is a more appropriate test because it is calculated solely based on ratepayer funds utilized by programs. As long as the program has a PAC threshold greater than 1.0, and has a high SCT threshold, the program should be approved by the Commission.

<sup>4</sup> Programs like Energy Efficiency and Demand Response are central to carbon mitigation, and have been recommended by both the CPUC and the California Energy Commission (“CEC”). See AB 32 Scoping Plan at page 7.

<sup>5</sup> SB 350 seeks to double Energy Efficiency savings by 2030.

### III. **CONCLUSION**

MCE thanks the Commission staff for facilitating the SCT Workshop, and for the opportunity to provide these comments on the Workshop.

Respectfully submitted,

/s/ C.C. Song

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October 4, 2016

October 4, 2016

## NRDC informal comments on the September 22, 2016 workshop of the Cost Effectiveness Working Group

Thank you for the opportunity to offer these informal comments in advance of a Staff proposal. We also appreciate the staff research and E3 presentations that succinctly summarized and brought the group up to speed on the conversation that has been on hold since 2013 – this was no small feat. NRDC has submitted numerous informal and formal comments on cost effectiveness, and we are eager to continue this conversation and to find solutions that appropriately value distributed energy resources (DERs).

Defining appropriate metrics for what is “cost effective” is a vitally important part of the Commission’s work, and this task is elevated further by the responsibility to meet the doubling energy efficiency and 50% renewable energy targets, as defined in SB 350, and the 2030 climate target, as defined in SB 32. The history that the Staff provided at the workshop was also a helpful reminder that the Commission has long had the statutory responsibility to include environmental and other benefits in calculating cost effectiveness. The language from Public Utilities Code § 701.1 (c), which became law in 1990, is unambiguous: “Commission shall include, in addition to other ratepayer protection objectives, a value for any costs and benefits to the environment, including air quality.”

It is clear to NRDC that we have been undervaluing and under-procuring clean energy resources, and we see this proceeding and the Cost Effectiveness Working Group, as an opportunity to resolve these issues and to put California on course to achieve our 2030 climate and energy goals. While we agree there are substantial opportunities to improve how we value distributed energy resources, we also urge the Commission to ensure that any future modifications or new approaches be founded in strong data and analytics. We offer the following comments in advance of the Staff proposal and other activities of the Cost Effectiveness Working Group:

- **We strongly support exploring a Societal Cost Test and “value” of carbon emission reductions in this proceeding and with this working group.** This topic is not part of the current plans for the IRP proceeding, and that proceeding’s compressed schedule and complexity will not allow space for focusing on these important issues. [comment on Staff Presentation slides 5-6]
- **NRDC supports Option 1 – developing a Societal Cost Test**, and adopting it for use consistently across all DER proceedings. *At a minimum* this should include a social discount rate of 1-3% real, a value to reflect health impacts from air quality, and a value for carbon emission reductions. We find the E3 presentation from 2013 compelling, and support digging further into this analysis to hone in on the precise numbers for these values. We also support the consideration of other additions that would better reflect societal cost or benefits. [comment on Staff Presentation slide 20]
- **NRDC supports Sub-Option 1A – Requiring the SCT and using it as the principle test to determine cost effectiveness and therefore budget(s) to support deployment of DERs.** This choice is supported by the Public Utilities Code and is most aligned with the State’s goals as well as with charting the most cost effective path towards providing the greatest societal benefits. However, we request a focused conversation with the CEWG about the relative merits of the various tests. Especially given the challenges around quantifying non-energy benefits, we have supported the use of the Program Administrator Cost (PAC) test in the past, and the PAC test may also have a key role to play going forward. [comment on Staff Presentation slide 21]



- **While we agree that the CPUC focus on a few inputs at first (e.g. discount rate, carbon, health impacts), we also recommend the Staff proposal include a schedule for considering additional inputs, such as quantifiable (e.g., water savings) and non-quantifiable non-energy benefits.** In addition, we understand that the CPUC is waiting to create a working group to address the various requirements to address disadvantaged communities. We propose the Staff proposal include a preliminary scope and schedule for what issues will be addressed and on what timeline. [general comment]
- **In addition, we ask that the Commission develop a separate \$/tonne of carbon avoided metric to be able to compare the cost of obtaining a tonne reduction in carbon across DERs (or portfolio of DERs) as well as potentially across other greenhouse gas reduction methods beyond DERs (e.g., CCS).** This would not be a threshold for cost effectiveness, as the SCT would provide that threshold, but to aid in planning and portfolio design specifically to meet the climate objectives required of the CPUC. For example, after running the SCT and determining the relative costs of the DERs, the CPUC would then layer on this information to provide additional insight to prioritize those DERs that would most cost-effectively meet the specific goal of reducing carbon set forth by the legislature. A similar layering approach could also be considered for prioritizing disadvantaged communities.

This would not be the same as the “social cost of carbon,” which would be the uniform across all resources. Instead this would represent the cost of obtaining a specific resource divided by the tonnes mitigated. This information would help the Commission and stakeholder assess the relative cost of emission reductions from the various resource options, while the SCT would assess the more comprehensive benefit/cost calculation.

We propose this concept be discussed in the working group as there are a number of critical details to work out. For example, it may be appropriate to use the program administrator cost of obtaining the resource (as opposed to the *total* cost that includes the customer contribution) divided by the tonnes mitigated so that the focus is solely on the level of investment per tonne required by the program administrator to motivate the emissions reduction. Since customers are motivated by many other co-benefits to pay for part of a DER project, it would not be a clear comparison if these costs were included to determine the relative expense of DERs from a tonne of carbon perspective. [general comment]

**Pacific Gas and Electric Company**  
**Informal Comments on September 22, 2016**  
**Societal Cost Test Workshop**  
**(Revised November 16, 2016)**

Pacific Gas and Electric Company (PG&E) would like to thank the Energy Division for allowing us to provide comments on the Societal Cost Test Workshop and the development, use and quantification of a Societal Cost Test (SCT). PG&E is eager to participate in this effort. However, the factual, policy and opinion issues relating to determining an SCT are significant and material, and it is likely that some or many of the issues may be subject to substantial dispute among interested parties even after the completion of the informal workshops. Accordingly, PG&E requests the opportunity for evidentiary hearings, including prepared testimony, discovery, and cross-examination of witnesses on factual, policy and opinion issues regarding the SCT that may remain in dispute following the informal workshop phase of this proceeding.

In responding to the questions posed by Energy Division and by E3, PG&E would like to express its support for certain basic principles that should be followed in the development, use and quantification of a SCT:

1. Each of the five existing Standard Practice Manual tests provides useful information; each provides a different perspective to evaluation. The SCT should exist as a separate cost-effectiveness test, serving as additional information to facilitate decision making as warranted in various distributed energy resource (DER) proceedings.
2. Any identification of a societal benefit or cost or the quantification of such needs to be based on a full vetting of the issue.
3. Costs to customers to compensate DERs should be based on competitive processes to achieve least cost outcomes for customers.

**Development Process**

The phased Working Group process proposed by the California Public Utilities Commission (CPUC or Commission) and conducted by the Energy Division was effective in identifying components of the cost-effectiveness analysis that required updating. These components were agreed upon by all the parties (as conducted in Phase 1). The Working Group process was also effective for helping to drive agreement on selected areas. However, the Phase 3 issues are issues for which there is considerable disagreement

and for which consensus is highly unlikely. The Phase 3 portion of the Integrated Distributed Energy Resource (IDER) proceeding regarding the SCT requires a more formal approach than the working group can provide. As indicated above:

- It is anticipated that the discussions and recommendations relating to a SCT within this IDER proceeding will be very contentious and there will likely be significant differences between the parties regarding factual issues. It is important that a transparent process is created that allows parties the opportunity to address statements or assertions made by other parties. While party comments are useful, the process should also include discovery, testimony and hearings where needed to resolve disputed issues.
- Any identification of a societal benefit or cost or the quantification of such needs must be based on a full vetting of the issue. No societal benefit or cost or their respective values should be adopted by the Commission unless parties have had the opportunity to address both the appropriateness of the proposed societal benefit and the quantification of said benefit. The burden of proof of including a societal benefit or cost and its quantification should remain with the proponent. In addition, if a study is relied upon in the proceeding, the party introducing the study should provide a witness capable of answering questions about the study in an evidentiary hearing.
- All five cost tests can provide useful information for resource and project evaluation. Regardless of the test used, suppliers should be compensated based on a competitive process to obtain the best ratepayer value, not based on the results of the SCT.
- A test should not be used to justify providing funding to a DER if the DER is otherwise economically viable without a utility program.

### **Social Cost of Carbon**

The workshop included extensive discussion of the social cost of carbon (SCC), and PG&E takes this opportunity to provide a cohesive explanation of how this critical value could be quantified. PG&E notes that there are two fundamental approaches that were presented, one based on the abatement costs associated with a new Integrated Resource Plan (IRP) program and one based on the damage cost. PG&E notes that another alternative would be to use abatement costs tied to the multi-sector cap-and-trade program, as the CPUC uses in the Total Resource Cost (TRC) test. PG&E believes that it is premature to use the damages method to estimate the value of carbon in an SCT, as this method has

not undergone a formal evidentiary process at the CPUC. Similarly, it is premature to estimate the value for carbon in an SCT using abatement costs for an IRP program that hasn't yet been determined. PG&E recommends that the damages method and any alternatives to valuing carbon be evaluated in a broad proceeding, such as the IRP, that can provide a full vetting of the issues via a transparent process that allows parties the opportunity to file comments and reply comments, submit data requests, and conduct cross-examination in the context of hearings if needed. In the interim, the Commission should continue to use the current method of estimating carbon value based on current and forecast cap and trade prices.

PG&E believes that E3 and Energy Division could more accurately represent the current role of cap-and-trade based abatement costs as a utility avoided cost in cost-effectiveness tests. In particular, the workshop slides place an inappropriate focus on a single, near-term cap-and-trade price. In fact, the 2016 update to the avoided greenhouse gas (GHG) cost relies on the California Energy Commission's 2015 Integrated Energy Policy Report (IEPR) mid-case GHG price trajectory, which increases significantly over time (to over \$50 in 2030). Hence any gap between cap-and-trade based GHG costs and other estimates is narrower than presented. In addition, future IEPR forecasts will incorporate updated information about future cap-and-trade prices as ARB moves forward with its regulatory amendments defining the post-2020 cap-and-trade program, and as legal uncertainty associated with the program is resolved. These can be incorporated over time in the avoided cost tool. Given the aggressive GHG targets established by Senate Bill (SB) 32, these updates would be expected to narrow or even remove any gap between cap-and-trade based GHG costs and other estimates.

When alternative values for carbon are considered in a broad proceeding such as the IRP, including damages-based estimates, we encourage Energy Division to leverage the significant work of the Federal Government's Interagency Working Group on the Social Cost of Greenhouse Gases<sup>1</sup> and to follow developments at the National Academy of Science's efforts in this area.<sup>2</sup>

PG&E cannot support a value for carbon that would produce unacceptable customer costs. In developing the cap-and-trade regulation, the California Air Resources Board (ARB) identified the highest levels of GHG costs that would be acceptable and included program features (such as the allowance

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<sup>1</sup> See: <https://www.whitehouse.gov/omb/oira/social-cost-of-carbon>

<sup>2</sup> See: [http://sites.nationalacademies.org/DBASSE/BECS/CurrentProjects/DBASSE\\_167526](http://sites.nationalacademies.org/DBASSE/BECS/CurrentProjects/DBASSE_167526)

price containment reserve (APCR)) intended to avoid exceeding such costs.<sup>3</sup> ARB has proposed a new formula for determining the APCR price in the post-2020 program.<sup>4</sup> If an SCT is in any way used to approve ratepayer funding, we encourage Energy Division to leverage ARB's work on the APCR and ensure that any SCC adopted for use in a SCT at least not exceed ARB's APCR prices.

Furthermore, any cost test that includes quantification of GHG impact must take into account the fact that grid connected renewable resources are increasingly becoming the marginal resource being displaced by DERs.

### **Use of SCT**

Determining how a SCT should be used is equally as important as determining what components to include quantitatively in the SCT. These two determinations must be mutually consistent, such that the SCT provides useful information for its intended purpose. PG&E anticipates a degree of controversy surrounding the use of this test, and therefore recommends that the appropriate use of the SCT be considered at the same time as the development of the test and input values in a broad proceeding, such as the IRP, that can provide a full vetting of the issues via a transparent process that allows parties the opportunity to file comments and reply comments, submit data requests, and conduct cross-examination in the context of hearings if needed. Building off the Energy Division's cost-effectiveness mapping project, PG&E offers the following preliminary thoughts on categorization of potential SCT uses, and looks forward to a more complete discussion of this topic in the future:

1. **Funding Approval (Quantitative):** Resources or programs could meet a SCT threshold (e.g.  $SCT \geq 1.0$ ) in order to be approved for funding by ratepayers, unless there are strong policy reasons that overcome this (such as is found with low income programs). This may be in addition to other requirements, such as that the program must also have a TRC of at least 1.0.
2. **Funding Approval (Qualitative):** If resources or programs must meet another cost-effectiveness test (e.g.  $TRC \geq 1.0$ ) in order to be approved for ratepayer funding and a resource or program marginally fails that test (e.g. within 0.05 of the threshold), that resource or program might be approved if it meets a minimum SCT threshold.
3. **Program Assessment (Qualitative):** For programs that do not have a TRC cost-effectiveness test, such as the Energy Savings Assistance (ESA) program, which provides energy efficiency for

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<sup>3</sup> "Resolution 12-51," California Cap and Trade Program, State of California Air Resources Board, October 18, 2012.

<sup>4</sup> See: <https://www.arb.ca.gov/regact/2016/capandtrade16/capandtrade16.htm>

low income customers, the SCT could serve to inform decision makers about richer program design.

4. **Technology Eligibility:** Resources or technology categories could meet a SCT threshold in order to be eligible for consideration in a program. This is separate from any cost-effectiveness thresholds that may be required to approve funding for that program.
5. **Impact Evaluations:** Retrospective evaluations of a program or resource's impact could use the SCT results to provide a more extensive description of the societal value of the program.

### **Energy Division Questions**

*Did staff overlook any decisions / SCT statutory underpinnings? Is Energy Division's history on the SCT application being varied / inconsistent an accurate depiction? Are Energy Division's mapping slides accurate (EE, DG, DRP)?*

The Legislature anticipated inclusion of different benefits under different circumstances. Specifically, for purposes of consideration of a SCT, the Legislature provided no indication that the underpinnings for development of a SCT would automatically apply to every DER. In a few areas, the Legislature has indicated that the CPUC should include environmental benefits and costs along with traditional benefits and costs, but clearly not to the exclusion of overall costs, and not every DER should consider the same benefits.

PG&E generally agrees with the Energy Division ultimate determination that the SCT has been applied inconsistently across DERs. Of note with respect to the slide deck provided by the Energy Division:

- Slide 7 is legislative intent language, which generally does not carry the same weight as a specific mandate.
- Slide 8 contains a partial quote from California Public Utilities Code Section 701.1<sup>5</sup>, but it only applies to conservation and load management programs. It does not address energy efficiency, customer distributed generation, or electric vehicles. For electric vehicles (EV), for example, Slide 8 misses the language in Section 740.8, with a longer list of benefits, to be applied to evaluation of transportation electrification. Further Legislative direction regarding evaluation of the NEM program can be found in Section 2827.1(b) (1) through (4).

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<sup>5</sup> All additional statutory references are to the California Public Utilities Code unless otherwise noted.

- Slide 12 oversimplifies the distributed generation (DG) status. While Decision (D.) 09-08-075 determined how the SCT should be calculated, it did not direct under what circumstances it should be used. The CPUC has *never* used the SCT in any decision-making for the CSI or NEM programs. There were results of the SCT reported in a cost effectiveness study done in October of 2011, along with the four other tests in the Standard Practice Manual
- As the CPUC has addressed cost effectiveness of distributed generation programs, PG&E notes that there was never a SCT done for the net Energy Metering (NEM) program, only the California Solar Initiative (CSI) and Small Generator Incentive Program (SGIP) Programs. The Public Tool used in the NEM successor proceeding produced a SCT, but the results of the Public Tool were not used in any decision-making, nor were they adopted by the CPUC.
- For energy efficiency programs, non-energy participant benefits have inconsistently been addressed by modifying the incremental measure cost for some measures. Itron's 2014 Measure Cost Study<sup>6</sup> removed these costs for some measures, but the results were not fully adopted by the CPUC, while other measures that weren't studied still include participant non-energy costs.

#### **Options for Potential Staff Proposal by Energy Division**

The Energy Division has invited comments on three options being considered as they develop a proposal for how to define the SCT and how it could be used consistently across all programs. PG&E notes that the SCT is just one of five benefit cost tests that can be used to evaluate DER programs. While PG&E agrees that the definition, scope and inputs to the SCT should be consistent across all programs, there must be clarity that "consistency" does not mean that it must be used in all circumstances, or that if one DER proceeding uses it, that all others must as well. Each of the five tests in the Standard Practice Manual was developed to address a particular point of view. Therefore the choice of whether to use a test would depend on the question being asked. The following examples can illustrate this.

- If the Legislature asks the CPUC to determine the rate impact of a given DER program, then the Ratepayer Impact Measure (or RIM) test would be appropriate. One would not use the TRC or the SCT in this case because rate impacts are treated as a wealth transfer in those tests and do not affect the outcome of the test.

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<sup>6</sup> "2010-2012 WO017 Ex Ante Measure Cost Study Final Report," Itron, May 27, 2014.

- The average bill impact of DER program may be of interest to policy makers, and this can best be determined by the Program Administrator Cost (PAC) test, which excludes consideration of costs and benefits exogenous to the utility.
- If the CPUC is examining the more cost-effective choice between a DER and the marginal alternative resource, taking into consideration financial transactions exogenous to the utility, then the TRC test would be appropriate.

PG&E expects that inputs to the SCT will also have varying degrees of reliability, accuracy, and precision. For some inputs likely to be considered, such as the social cost of carbon, there would be relatively defensible data available which could be vetted in a proceeding. Other inputs being considered, such as net job creation, might have fairly strong data for some technologies (such as rooftop solar), but very little or no data available for other technologies (air conditioning). Further, when making quantitative decisions on ratepayer funding level for programs, it is appropriate to only include costs and benefits that have a nexus to rates, but for other decisions one might want to include non-energy benefits, as the ESA program does today.

Following is our discussion of the three Options, and use of the SCT or SCTs:

- *Option 1: Develop a Societal Cost Test, and adopt it for use consistently across all DER proceedings*
  - *Option 1A: Require it be used as the principal test, a priori, across DERs*
  - *Option 1B: Require it be used as additional info across DERs*
  - *Option 1C: Require specific blended test (e.g. 50/50 SCT:TRC) used*

Among these three options, PG&E prefers Option 1B. PG&E agrees with the Energy Division that a form of SCT has been developed in different proceedings and has been little used and when used, has been used inconsistently in the past. If this test is to be used, it is time to have a thoughtful discussion about what should be included and to determine whether and how to quantify any inputs to the test.

PG&E does not support a *requirement* that a SCT be used, nor can PG&E support a blending of SCT and TRC as each test should be considered independently.

- *Option 2: Add a “social cost of carbon” value to the TRC (but no other societal impacts), and*
  - *Option 2A: Require it be used as the principal test, a priori, across DERs*



PG&E does not support any modification to the TRC. The appropriate cost of carbon for inclusion in the TRC would be the compliance cost. Similar to the discussion regarding use of a SCT, PG&E also believes it is a serious error to adopt Option 2A.

- *Option 2: Add a “social cost of carbon” value to the TRC (but no other societal impacts), and*
  - *Option 2B: Defer to individual proceedings on its application*

As noted earlier, each SPM test is designed to answer a distinct question, and the integrity of each test should be preserved. The only benefit included in the Total Resource Cost test, as defined in the SPM, is utility avoided costs, including avoided costs related to compliance with GHG emission regulations.

PG&E does agree that the appropriate place to determine what test should be used is within individual proceedings.

- *Option 3: Consider “social cost of carbon” and other societal benefits in qualitative assessments outside of SPM tests, and standardize their presentation across proceedings.*

PG&E believes may be useful to explore other societal benefits, including non-energy benefits, in **qualitative** assessments outside of SPM tests. Such a test need not necessarily include quantification of benefits or costs, but could contribute qualitative discussion of benefits or costs that reach far beyond any nexus to energy costs or prices. Obviously the use of such a wide-ranging test should be limited to uses which don’t directly impact rates, such as qualitative applications, technology eligibility decisions, or program impact evaluations.

A non-SPM test that includes non-energy benefits, or energy benefits that have no impact on rates, could be quantified, of course, and could provide enhanced value if it was. However, PG&E suggests that any quantification be subject to the same rigor that the CPUC should apply to tests that are used to support resource acquisition decisions: a full record in a transparent proceeding subject to discovery and cross-examination. To not require the same rigor for quantification for a test could be misleading, even where the test is not used for resource acquisition.

#### **SCT Methodology Issues – Discount Rate**

The use of a Societal Discount Rate in the calculation of the SCT should be based on the purpose envisioned for use of the SCT. If the SCT is used to approve ratepayer funding for a resource or program, to be included in the utilities' portfolios of resources designed to meet customer energy needs then the utilities' weighted average cost of capital (WACC) should be used as the discount rate. If, however, the CPUC views the Societal Cost Test as a quantitative means to approve funding of programs through *public* sources, then it would be appropriate to use a Societal Discount Rate.

### **Coordination with other proceedings**

*Are we right to think of the DER cost-effectiveness framework in coordination with the IRP process? Is the proposed mitigation cost as avoided alternative GHG compliance cost appropriate as opposed to damage estimates of GHG emissions? What are the strengths and weaknesses of the suggested CPUC- jurisdictional scope of the marginal GHG abatement approach?*

The IRP process is the vehicle for identifying how best to reach GHG reduction goals outlined in SB 350 and SB 32, including deployment of DERs, and therefore must be coordinated with DER proceedings, including IDER. The current IRP timeline suggests that DER deployment could be informed by Commission guidance in the IRP proceeding in late 2017 or early 2018. Any interim decisions in IDER related to how DERs are deployed, including decisions on social cost of carbon, SCT and its use must be revisited once the IRP process is established.

For the second question on appropriateness of GHG compliance cost versus damage estimates, please refer to third paragraph under Social Cost of Carbon on Page 3. PG&E is not able to comment on the strengths and weaknesses of the jurisdictional scope of the marginal GHG abatement approach at this time, beyond the earlier discussion referenced above.

**From:** Renee Guild <renee@gem-corp.com>  
**Sent:** Tuesday, October 04, 2016 10:23 AM  
**To:** Bull, Pierre  
**Subject:** Re: IDER Societal Cost Test Workshop Informal Comments

Determining the societal marginal *benefit* of the Commission's actions to combat climate change is a lot easier for the Legislature to order, than the Commission to do. Even estimating the *costs* is difficult. Traditional ratemaking is based on hindsight, yet this effort to estimate the cost of carbon that is not emitted due to the Commission's orders for IOUs and encouragement of others through various incentives to invest in non-fossil fueled resources, would place the Commission on a course that needs good data to drive it. In an arena already fraught with speculations about the harm carbon is creating, including the possible extinction of our species, how can the commission ascribe a value to society of its actions? Further, which "society" are we benefiting – do we try to do the cost-benefit analysis just for California society, or are we looking at a regional, or even international, benefit? Recent cap and trade prices worldwide have fallen through the floor and California's updated scoping plan projects that over 70% of emissions abatement required by 2020 will come from mandates such as the RPS, at much higher prices per ton of carbon than the permit price (Energy Institute at Haas, June 20, 2016). The market's carbon prices are almost certainly not reflecting the actual cost of abatement, let alone its value over whatever period of time or generations one chooses.

The Commission has updated its cost-effectiveness framework in D. 16-06-007 (June 9, 2016) and ordered that the avoided cost calculator be updated annually and applied to all proceedings. It has established a budget of \$100,000 per year to update the Avoided Cost Calculator and \$400,000 annually, for three years, for technical assistance and research on future cost-effectiveness models, and authorized the Commission's Executive Director to hire a contractor or contractors to do so.

\$500,000 per year seems a reasonable budget for that effort. While the decision does not explicitly order that research into the societal benefit of reduced emissions from DER be part of that work, I suggest it is certainly a place where more study is needed, and is a natural and logical part of refinement of the commission's cost-effectiveness framework. Even if such research is only a compilation of relevant studies such as those that have been done on the health effects fossil fueled power plants, or others being done nationally or internationally that are similarly trying to grapple with this problem, such secondary research would help to inform the Commission's deliberations on this important matter further than the data at present allows. This matter of ascribing benefits and costs to carbon abatement is certainly one of the most difficult and consequential issues the Commission faces, and before it acts to include such costs of avoidance in future rates, it needs better information on which to justify those decisions.

Renee H. Guild, Principal Consultant and Commissioner Emeritus (Nevada) Global Energy Markets/GEM, Fremont, California

***Renee H. Guild, Principal Consultant, Global Energy Markets, Fremont, CA 94536 (650) 278-3259 (cell)***

## Southern California Edison Company's Informal Comments on Societal

### Cost Test

Southern California Edison Company (SCE) appreciates the opportunity to submit these informal comments on the societal cost test workshop.

### [Societal Costs Should Be Discussed in the Integrated Resource Planning \(IRP\) Process](#)

Senate Bill (SB) 350 establishes a number of legislatively mandated requirements for the State and the electric sector, including but not limited to establishment of an integrated resource plan process to ensure that load-serving entities do the following: (1) meet the greenhouse gas (GHG) emissions reduction targets established by the California Air Resources Board (CARB), in coordination with the California Public Utilities Commission (Commission or CPUC) and the California Energy Commission (CEC), for the electric sector and each load-serving entity that reflect the electric sector's percentage in achieving the economy wide GHG emissions reductions of 40% from 1990 levels by 2030; (2) meet the 50% Renewables Portfolio Standard; (3) enable each electrical corporation to fulfill its obligation to serve its customers at just and reasonable rates; (4) strengthen the diversity, sustainability, and resilience of the bulk transmission and distribution systems, and local communities; (5) enhance distribution systems and demand-side energy management; and (6) minimize localized air pollutants and other GHG emissions, with early priority on disadvantaged communities.<sup>1</sup> The State's IRP process is under active development and is uniquely designed to enable coordination between the Commission, CARB, CEC, and the California Independent System Operator, consider inter-sector carbon and criteria pollutant impacts, place early priority on disadvantaged communities, and minimize bill impacts while maintaining just and reasonable rates. Indeed, the IRP process is the only process that can comprehensively evaluate various options and pathways to achieve SB 350 goals, and it is the only process that can meaningfully compare the many impacts of energy

<sup>1</sup> Cal. Pub. Util. Code § 454.52(a)(1).

efficiency and other distributed energy resources (DERs) with the impacts of other measures, including in other sectors of the economy, in evaluating GHG emissions and criteria pollutant reductions.

For these reasons, SCE believes that the IRP is the only appropriate venue to discuss avoided costs, carbon valuation, criteria pollutant reductions, and discount rates in order to fulfill SB 350 requirements, and to fairly and equitably analyze inter-sector reductions in emissions that may be greater in quantity and less costly to electricity sector customers than actions limited to further decarbonize the electricity sector.

In the event that the Commission chooses to further develop cost-effectiveness metrics, such as the parameters of the societal cost test (SCT), outside of the IRP process, such metrics and methods should be used on an “interim” basis and should be subsumed in the broader SB 350 IRP process as soon as practical.

#### [Societal Cost Test Uses and Application](#)

If societal cost and benefits will be ultimately factored in to select resources or programs that utility customers pay for, SCE recommends that those societal costs and benefits must be equitably applied to all resources, including utility scale resources, that exhibit those benefits, and not solely to DERs.

As explained above, SCE believes that the development and application of societal benefits across all resources and sectors of the economy should occur in the IRP proceeding since these societal factors can help design the mix of portfolios of integrated resources that emerge from the planning process. However, to the extent the Commission wants to develop and use the SCT in near term, i.e. before the IRP process is established, the SCT should be used only as a supplementary test or scenario in addition to the Total Resource Cost (TRC), Program Administrator Cost (PAC), and Ratepayer Impact Measure (RIM) tests. Each test provides useful information about the costs and benefits of DER programs, and all tests together should be used to determine funding levels for DER programs. SCE discourages using the SCT as a primary

test to determinate the cost-effectiveness of DER programs. E3 highlighted in their 2013 scenario analysis that SCT benefits could be between approximately 50% to 250% greater than TRC benefits depending on inputs and technology. Using only the SCT to make decisions would inevitably result in pursuit of more expensive DERs, which will increase average utility customer rates and bills.

### Societal Cost Test Methodology

#### Discount Rate

When DER programs are paid for by utility customers, the discount rate for the SCT should be the utility's weighted average cost of capital (WACC). The Commission has often used the utility's weighted average cost of capital when evaluating the benefits and costs of programs undertaken for customers. SCE supports developing a SCT *scenario* that uses a discount rate that is tied to a market instrument such as a 10 or 20-year California bond or Treasury note. However, such a discount rate should incorporate a risk premium above the risk-free rate to account for risk that is inherent in unproven technologies.

#### Social Cost of Carbon

The marginal costs of carbon abatement should be considered economy wide and not just in the electric sector. By only considering electric sector abatement costs and then only applying those estimated marginal abatement costs as a proxy of the benefits provided by DERs, the Commission runs the very substantial risk of sending inaccurate and perverse price signals. Doing so might disincentivize multi-sector carbon reduction, while increasing the cost of electricity customers in acquiring higher cost DERs, even though the society could have achieved the same amount of emissions reductions at lower cost. A very real example of such multi-sector GHG-mitigation measure is the electrification in the transportation and goods movement sectors.

Since CARB “is responsible for estimating multi-sector contributions to achieve the state’s GHG emission reduction goal,”<sup>2</sup> and the IRP proceeding will coordinate between State agencies, the cost of carbon should be addressed in the IRP proceeding to help determine the least cost portfolio of resources to reach State goals. Addressing marginal costs of carbon in the IRP proceeding will reduce the potential for either double counting the carbon costs or establishing inequitable distribution of carbon costs on some sectors because the IRP proceeding is designed to holistically analyze, optimize, and recommend resources and actions to achieve state goals.

SCE disagrees with staff representation at the workshop that GHG allowance prices in the CARB’s cap-and-trade market are not the correct proxy for carbon reduction costs, and that even if cap-and-trade is extended beyond 2020, the market prices of GHG allowances will not be used in the SCT. SCE submits that whereas momentary supply and demand balance issues may translate to allowance prices trading near a floor designed by CARB, the objective of the cap-and-trade program is to let the market determine the true cost of compliance with the state’s desired emissions reductions goals. To ignore the allowance market prices, and instead, adopt marginal abatement costs or estimated societal damage costs in the SCT would not result in any different compliance with SB 350 and will unnecessarily increase costs to the electricity customers. To have some decisions based on the SCT economics of carbon and others based on the cap and trade price for carbon will lead to inefficient outcomes for all. Therefore, SCE recommends that the carbon costs currently reflected by the cap-and-trade market price should be the correct price to use for the SCT. The Commission should not develop a separate price of carbon to avoid disincentivizing economy wide carbon reduction.

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<sup>2</sup> CPUC Staff Concept Paper on Integrated Resource Planning, CPUC Energy Division, August 11, 2016, at p. 28.

### Air Quality Health Effects

SCE recommends that Energy Division consider specific air quality health effects for disadvantaged communities within the context of the IRP proceeding. As previously mentioned, the comparison of societal benefits and costs across resources is best addressed in the IRP process, which is designed to holistically assess solutions to State goals across sectors. Until such an evaluation takes place, SCE recommends against using the high values of societal health benefits suggested at the workshop based on E3's 2013 study in the interim SCT.

### Societal Cost Test Regulatory Process

Finally, SCE appreciates Energy Division's transparency in explaining the path forward for consideration of a SCT, as laid out during the September 22<sup>nd</sup> workshop, with the major next step being the development of a staff proposal for consideration by the Commissioner. However, SCE notes that this is a significant topic, both in scale and impact, that will require robust discussion and record development before any decision can be rendered. Accordingly, SCE encourages the Commission to formally engage stakeholders on this topic to develop the record, and allow the parties to request evidentiary hearings, if needed.



**SAN DIEGO GAS & ELECTRIC COMPANY**  
**R.14-10-003**  
**INFORMAL COMMENTS ON SEPTEMBER 26, 2016**  
**SOCIATAL COST TEST WORKSHOP**

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San Diego Gas and Electric Company (SDG&E) appreciates the Energy Division (ED) of the California Public Utilities Commission (CPUC) hosting a workshop on September 22, 2016 to discuss the issue of social costs as part of phase 3 of the Integrated Distributed Energy Resources (IDER) proceeding (R.14-10-003). The Cost Effectiveness Working Group (CEWG) Final Report teed up the questions in the Draft List of Phase 3 Issues, section 2 – “Align the cost-effectiveness framework with California’s environmental goals.”

SDG&E supports the state’s efforts to reduce greenhouse gas (GHG) emissions and is actively participating in the numerous proceedings across the state agencies that are working on developing the policy direction and implementation of Senate Bill (SB) 350, SB 32, and Assembly Bill (AB) 197. However, in order for this policy direction to be implemented in the most organized and cost effective manner it is imperative that the state agencies work together to provide an integrated and cohesive plan. Clarity is sorely needed so that stakeholders can understand how each proceeding at each agency (the California Air Resources Board (ARB), the California Energy Commission (CEC), the California Independent System Operator (CAISO) and CPUC) is going to work together to achieve the state’s environmental goals. Simply continuing down the historical path of siloed cost effectiveness analysis will not result in the needed GHG reductions at the lowest cost while maintaining reliability and providing the service that our customers expect at a reasonable cost. SDG&E supports the path laid out by E3 at the workshop as a reasonable path forward to determine how to integrate the social cost of carbon and criteria pollutants into the cost effectiveness analysis of distributed energy resources (DERs).

Also, as pointed out in the CEWG Final Report, the question of how to include the State’s environmental goals is closely related and probably inseparable from the question of how the various cost-effectiveness tests (including a possible new societal test) should be used for program approval, design and evaluation, as well as possible cost sharing or mutual goal making with other agencies and organizations. SDG&E supports increased reliance on the Program Administrator Cost (PAC) Test for determining cost effectiveness as most compatible with

the SB 350 mandate for “each electrical corporation to include, as part of its proposed procurement plan, a strategy for procuring best-fit and least-cost resources to satisfy the portfolio needs identified by the commission pursuant to subdivision (a).” A societal cost test should be used only in limited occurrences where “society’s funds” are being used such as Proposition 39 funding of energy efficiency and GHG reductions being funded by ARB’s cap-and-trade auction revenues.

SDG&E recommends that the Commission create a process that results in a highly robust record, such as a ruling soliciting answers to a set of questions, followed by workshops and comments as it considers the use of the Societal Cost Test and the various inputs that will be used for the test.

The detailed comments below follow the order of presentations at the Workshop.

## **I. STATUTORY UNDERPINNINGS**

ED appropriately summarized the statutes that should guide the Commission’s effort to incorporate the State’s environmental goals including SB 350. AB 197 should have a more prominent place among the statutes as it was only mentioned in the appendix. Several key aspects of the cited statutes were omitted in the discussion. SDG&E encourages ED to consider these in the Staff Proposal.

First, ED included changes to Public Utilities Code (PUC) section 400 created by SB 350, but failed to include one of the elements most directly related to cost effectiveness. SB 350 also changed PUC section 454.51 (b) to direct the development of Integrated Resource Plans, stating, the CPUC should “[d]irect each electrical corporation to include, as part of its proposed procurement plan, a strategy for procuring best-fit and least-cost resources to satisfy the portfolio needs identified by the commission pursuant to subdivision (a).” In order to align the cost effectiveness analysis with this directive, the approach proposed by E3 in its presentation “Perspectives on the Use of Social Cost of Carbon in Distributed Energy Resource Cost-effectiveness” should be adopted. As explained on slide 7, the marginal abatement opportunities should be considered to determine the cost of the best-fit and least-cost resource avoided by distributed energy resources (DERs).

Second, PUC 701.1 does provide useful guidance. PUC section 701.1(b), which requires utilities to pursue actions “not being exploited by any other entity” would seem to require a look at activities at other agencies, for

example Proposition 39 and ARB cap-and-trade spending. While this does not impact the cost effectiveness analysis, it may indicate restrictions on CPUC DER programs and resources eligible to receive funding.

Third, while ED presented a portion PUC section 701.1 (c), it did not mention the language which states environmental costs and benefits should be developed consistently with the CEC. This sentence is important to ensure a consistent cost approach by all agencies. The State will be more likely to meet its environmental goals if all state agencies have a similar view of environmental costs to consider in cost effectiveness analysis. It is particularly appropriate to work with the CEC since the CEC has oversight of the Publically-owned Utilities' (POUs) IRPs. A common cost effectiveness valuation would also assure load serving entities (LSEs under CPUC jurisdiction) are not disproportionately impacted. SDG&E would note that the CEC has considered the social cost of carbon in both the 2014 and 2015 Integrated Energy Policy Reports.

Lastly, AB 197 puts an emphasis on the direct reduction of emissions from stationary sources in disadvantaged communities and SB 350 encourages the use of non-emitting distributed generation in disadvantaged communities to achieve economic and environmental benefits. It is unclear how this can be operationalized in the cost effectiveness test. The location of the avoided new fossil combustion turbine is unknown, so the cost of the avoided criteria pollutant emissions is unknown. ED should address location-specific cost-effectiveness in its proposal. Some options would include to use a statewide average as was done in the 2005 vintage cost effectiveness models, or to assume the next combustion turbine would be built in the location where the DER is being evaluated, or assume it is displacing emissions from the nearest existing fossil facility that would otherwise operate.

## **II. APPLICATION OF SPM TESTS AND COST-EFFECTIVENESS MAPPING**

SDG&E agrees with the ED analysis that different proceedings have relied on different cost effectiveness tests and different standards have been applied in the past for cost effectiveness. Rulemaking 04-04-025 attempted to apply a consistent standard, but the proceeding fractured as disputes about avoided costs were raised in various proceedings. At this point, we have a wide variance in which tests are relied upon, e.g., a combination of total resource cost (TRC) test and the PAC test in the Energy Efficiency (EE) proceeding; TRC test in Demand Response

(DR) proceeding; and a social cost test for the Self-generation Incentive Program (SGIP). We also have a range of acceptance criteria from 0.8 in SGIP to 0.9 in DR to 1.0 for EE.

SDG&E believes that cost effectiveness should be centered on PAC test as acquisition of DERs to meet utility and grid needs and reliance on the market is the Commission direction in this proceeding as evidenced by the formation of a Competitive Solicitation Framework Working Group. Though all tests provide information, the PAC test is aligned with the Commission goals to rely on the market to meet grid needs.

Cost effectiveness acceptance should also be consistent across proceedings with a PAC test value of 1.0 for all resources and/or programs. If there is uncertainty, scenarios should be used to consider range of value for uncertain parameters rather than lowering the threshold for acceptance. Energy Efficiency is first in the loading order and so if it is required to have a PAC cost-effectiveness test value of 1.0, all other DERs should be required to meet the same standard.

SDG&E has a history of aggressively pursuing EE and understands the important role EE will play in reducing electricity and natural gas demand to achieve the State's climate change goals. Likewise, San Diego is a leading city for rooftop solar installations in the nation. However, societal costs should not be taken into consideration when determining cost-effectiveness. Utility customers should only be asked to pay for utility costs. Susan F. Tierney, Ph.D., with the Analysis Group, Inc., argued this point in her March 30, 2016 white paper entitled "The Value of 'Der' to 'D': The Role of Distributed Energy resources in Supporting Local Electric Distribution System Reliability". Dr. Tierney asserts:

[i]n the day-to-day provision of electric service, these avoided societal costs are literally not part of the utility's avoided cost. Were the utility to compensate a DER supplier at this type of estimated full avoided cost (rather than its own avoided cost), then "missing money" problems could arise, which should be addressed through a fair and transparent ratemaking technique.

SDG&E recognizes that many DERs produce societal benefits in addition to the energy benefits that accrue exclusively to utility customers; but to determine whether a utility's investment in DERs is cost-beneficial relative to a more traditional investment, the PAC Test should be employed to take into consideration only those costs that factor into the "day-to-day provision of electric service." Customers of load-serving entities under CPUC jurisdiction

should not be asked to bear a disproportionate burden of mitigating societal costs through programs funded via utility rates. While customers of load-serving entities under CPUC jurisdiction benefit from mitigation of future societal costs, those customers are a small subset of those creating the societal impacts of GHG emissions. Their GHG emissions represent less than one percent of the U.S. GHG inventory and less than 14 percent of California's GHG emissions inventory.<sup>6</sup> As demonstrated in the analysis of UC Berkeley Professor David Roland-Host, raising utility rates has negative economic consequences, particularly in disadvantaged communities.<sup>7</sup>

### **III. E3 PERSPECTIVES ON THE USE OF SOCIAL COST OF CARBON IN DISTRIBUTED ENERGY RESOURCES COST-EFFECTIVENESS**

SDG&E supports the IRP integration approach outlined in the E3 presentation. To achieve the State's environmental goals, the ARB must first update California's Climate Change Scoping Plan with general guidance on what the electric sector may need to achieve. This list of GHG abatement measures would be further defined in the CPUC IRPs for each LSE to assist the State in achieving the SB 32 goal of a 40 percent reduction in GHG from 1990 levels accounting for economic growth and electrification in other sectors. This would then lead to a marginal abatement cost of various measures for use in DER procurement.

If an interim measure is needed before LSEs file their IRPs in 2017, the ED could create a range of the social cost of GHG associated with electricity delivered. A range of GHG prices based on the cap-and-trade floor and Allowance Price Containment Reserve tier 3 price would be comparable to a high and low range of \$75 and \$15 per MT recommended by EPA.<sup>8</sup>

SDG&E generally supports using the cost of compliance instead of a damages analysis since damage analyses generally have a very wide range of values. The E3 2013 presentation showed a range of \$32 to \$1,024/MT

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<sup>6</sup> The emissions of LSEs under the CPUC jurisdiction as a percentage of electric sector emissions is roughly 68% of electric sector emissions based on ARB analysis for purposes of allowance allocation. In 2014, 20% of Statewide GHG emissions were from the electric sector per the ARB statewide inventory. Thus, roughly 14 percent of total statewide GHG emissions are from the CPUC-jurisdictional LSEs. Based on the ARB 2014 inventory, roughly 60 MMT of GHG emissions are attributable to CPUC-jurisdictional LSEs compared to the U.S. GHG total from EPA of 6,870 MMT.

<sup>7</sup> Berkeley Economic Advising and Research, Senate Bill 350 Study The Impacts of a Regional ISO-Operated Power Market on California, Volumes VIII and X, July 8, 2016. The study shows the positive impacts of lowering electricity rates, so there are negative impacts of increasing rates.

<sup>8</sup> California Energy Commission, 2014 Draft Integrated Energy Policy Report Update, CEC-100-2014-001-D, page 77.

of CO<sub>2</sub>e, a high end estimate more than 30 times the low end estimate.<sup>9</sup> It may take years to litigate a value acceptable to most parties given the wide range.

#### **IV. ENERGY DIVISION OPTIONS**

At the end of the workshop, ED presented a number of options for stakeholders to comment on. SDG&E supports a modified version of option 2A. Option 2A states, “Add the ‘social cost of carbon’ value to the TRC (but no other societal impacts), and require it to be used as the principal test, a priori, across DERs.” SDG&E’s modified version would state the following:

Add a ‘social cost of carbon’ value to the Standard Practice Manual tests (but no other societal impacts), and require the PAC test to be used as the principal test, a priori, across DERs procured by CPUC-jurisdictional load serving entities.

This approach would be most consistent with the direction of the State as articulated in SB 350 and AB 197 and the Commission in its desire to rely on market processes to use DERs to meet grid needs.

SDG&E would note that care should be taken to not double-count the social cost of carbon. A cost of carbon is already embedded in the energy price and the avoided renewables cost premium in the avoided cost calculator, so some societal costs of carbon are indirectly already included. Any further adjustment to the cost of carbon should not double-count these already included elements.

SDG&E also notes that this workshop is currently focused on societal cost test as the method for determining cost-effectiveness. Cost-effectiveness can also be determined by least cost/best fit analysis through a solicitation process. As the design of the IRP and its impact on resource procurement continue to develop, SDG&E encourages the Commission to consider the LCBF solicitation approach as another viable alternative for determining cost-effectiveness.

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<sup>9</sup> E3 2013 Presentation, slide 22.

To: Pierre Bull and Simon Baker  
From: Sara Gersen and Will Rostov, Attorneys for Sierra Club  
Re: September 22 IDER workshop  
Date: October 4, 2016

Sierra Club commends the Energy Division for taking the initial steps toward fully including environmental costs and benefits in the Commission's cost-effectiveness framework. Since the legislature first enacted Public Utilities Codes section 701.1 in 1990, the Commission has had an obligation to consider societal costs. Recently, several statutes have made a robust analysis of societal costs even more imperative. Just last year, SB 350 expanded the Commission's duties to consider pollution costs.<sup>1</sup> This year, SB 32 required an economy-wide forty percent reduction in greenhouse gas ("GHG") reductions in a manner that benefits the state's most disadvantaged communities.<sup>2</sup>

Sierra Club supports the broad outlines of a societal cost test ("SCT") presented by the Energy Division because the SCT would do exactly what section 701.1(c) requires: include "a value for any costs and benefits to the environment, including air quality" in the Commission's cost-effectiveness calculations. The Energy Division ("ED") presentation suggested four elements for an SCT, and Sierra Club supports an SCT that includes these essential elements: A societal discount rate, air quality health effects, the social cost of carbon, and other environmental costs. We also appreciate the Energy Division's informative presentation and background memo, which provided important background information to stakeholders and promoted a productive discussion. Below, we comment on the questions raised in the ED presentation.

#### Did staff overlook any decisions?

Sierra Club has not conducted an exhaustive review of decisions related to section 701.1 or the Standard Practice Manual tests. Nonetheless, we are aware of four decisions indicating the importance of developing a SCT in this proceeding:

- ☐ In the demand response proceeding, the Commission declared that it should consider developing an SCT in the IDER proceeding.<sup>3</sup> In the DR decision, the Commission considered a proposal to add certain non-energy benefits to the existing SPM test protocols.<sup>4</sup> The Commission declined to do so because the change would have far-

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<sup>1</sup> See, e.g., Public Utilities Code §§ 400(a)-(c), 454.52(a)(1)(H).

<sup>2</sup> Health and Safety Code, § 38566; SB 32 (2016), § 1. See also Public Utilities Codes §§ 454.51(a); 454.52(a)(1)(A) (requiring for load serving entities to "[m]eet the greenhouse gas emissions reduction targets . . . for the electricity sector and each load-serving entity that reflect the electricity sector's percentage in achieving the economywide greenhouse gas emissions reductions of 40 percent from 1990 levels by 2030.").

<sup>3</sup> D.15-11-042 at 58.

<sup>4</sup> Id.

ranging effects in other proceedings, and explained that IDER was the appropriate forum for that process.<sup>5</sup>

- ❑ In the NEM 2.0 proceeding, the Commission found that it did not yet have the competence to use an updated societal cost-effectiveness test to ensure the tariff's "total" benefits were approximately equal to its total costs, as required by Public Utilities Code 2827.1(b)(4).<sup>6</sup> The Commission found it "reasonable to conclude" that IDER "will provide information and analysis relevant to the determination of the benefits . . . of the NEM successor tariff."<sup>7</sup>
- ❑ The Commission has stated that Phase 3 of the 2015 Staff cost-effectiveness proposal—which included development of a societal cost-effectiveness test—is one of its high priorities.<sup>8</sup>
- ❑ In the OIR instituting the 2016 LTPP proceeding, the Commission explained that the cost-effectiveness work in the instant proceeding is highly relevant to the ultimate integrated resource plan ("IRP") work in that proceeding.<sup>9</sup> Therefore, the LTPP proceeding will monitor the developments in this proceeding and may incorporate them into the LTP process.<sup>10</sup> The SCT developed in this proceeding is a necessary component for analyzing cost-effective IRPs in the LTPP.

#### Comments on the SCT methodology issues raised on slide 20

Sierra Club strongly supports the proposal that the Commission adopt an SCT for consist use across all DER proceedings. The Commission has stated that Phase 4 of the 2015 Staff cost- effectiveness proposal—which is devoted to creating an all-technology valuation framework—is one of its high priorities.<sup>11</sup> The Commission has already begun moving in that direction by requiring all DER proceedings to use the adopted avoided cost calculator.<sup>12</sup> Inconsistently applying the SCT would undermine the objective of developing a technology-neutral cost- effectiveness framework.

As noted above, the Commission has already stated that it should consider an SCT in this proceeding.<sup>13</sup> More recently, the Commission included consideration of a societal cost test in DER valuation by 2016 as an "action element in the discussion draft of California's Distributed Energy Resources Action Plan."<sup>14</sup>

<sup>5</sup> Id.

<sup>6</sup> D.16-01-044 at 59.

<sup>7</sup> D.16-01-044 at 107.

<sup>8</sup> D.16-06-007 at 19.

<sup>9</sup> R.16-02-007 at 19.

<sup>10</sup> Id.

<sup>11</sup> D.16-06-007 at 19.

<sup>12</sup> D.16-06-007 at 24.

<sup>13</sup> D.15-11-042 at 58.

<sup>14</sup> California's Distributed Energy Resources Action Plan: Aligning Vision and Action (Discussion Draft: Sept. 29, 2016), available at

[http://www.cpuc.ca.gov/uploadedFiles/CPUC\\_Public\\_Website/Content/About\\_Us/Organization/Commissioners/Michael\\_J.\\_Picker/2016-09-26%20DER%20Action%20Plan%20FINAL3.pdf](http://www.cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/About_Us/Organization/Commissioners/Michael_J._Picker/2016-09-26%20DER%20Action%20Plan%20FINAL3.pdf)



Below, we comment on the four elements of an SCT identified on slide 20 of the Energy Division workshop presentation: an appropriate discount rate, air quality health effects, a social cost of carbon, and other impacts of the electric sector on society. Each of these elements must be included in the SCT. While E3 correctly observed that California policy has “[s]ignificantly increased focus on GHG emissions reductions in the long term,” we emphasize that the focus on GHGs has not been to the exclusion of the other health and environmental impacts of burning fossil fuels. For instance, SB 350 significantly expanded the Commission’s duties to consider health-harming pollution in proceedings related to clean energy and in long-term planning.<sup>15</sup>

#### *Societal discount rate*

The Commission has already found that one of the fundamental features of an SCT is a societal discount rate: “The Societal Test differs from the TRC test in that it includes the effects of externalities (e.g., environmental concerns, national security), excludes tax credit benefits, and uses a different (societal) discount rate.”<sup>16</sup> At the September 22 workshop, E3 explained several reasons why the societal discount rate differs from private discount rates.<sup>17</sup> It is vital for the SCT to use an appropriate societal discount rate, consistent with the economic literature.<sup>18</sup>

#### *Social cost of carbon*

The social cost of carbon value should be based on the damage carbon does to the climate. These damages are the true cost of carbon from society’s perspective. In contrast, the abatement cost in E3’s presentation predicts a compliance cost that would only consider a utility’s cost of compliance with SB 32. Therefore, a “social cost of carbon” based on these abatement costs is a misnomer.

The Commission’s social cost of carbon should be consistent with the common-sense definition the California legislature incorporated into the AB 32 statutory framework: social costs are “an estimate of the economic damages, including, but not limited to, changes in net agricultural productivity; impacts to public health; climate adaptation impacts, such as property damages from increased flood risk; and changes in energy system costs, per metric ton of greenhouse gas emission per year.”<sup>19</sup> Because Commission’s GHG compliance is incorporated into the implementation of the AB 32 framework, ignoring this definition would undermine the legislature’s intent.<sup>20</sup> It would introduce unnecessary confusion into any attempts to coordinate

(“By 2016, begin Commission consideration of the use of a societal cost test in DER

valuation.”).

<sup>15</sup> See, e.g., Public Utilities Code §§ 400(a)-(c), 454.52(a)(1)(H).

<sup>16</sup> D.09-08-026 at 22.

<sup>17</sup> Brian Horii, Summary of CPUC Workshop on Societal Cost Test, slide 7.

<sup>18</sup> See, e.g., Cass Sunstein and David Weisbach, Climate Change and Discounting the Future: A Guide for the Perplexed (2008) at 18-20, available at [https://www.hks.harvard.edu/m-rcbg/cepr/Online%20Library/Papers/Weisbach\\_Sunstein\\_Climate\\_Future.pdf](https://www.hks.harvard.edu/m-rcbg/cepr/Online%20Library/Papers/Weisbach_Sunstein_Climate_Future.pdf).

<sup>19</sup> AB 197 (2016), adding Health and Safety Code § 38506.

<sup>20</sup> Public Utilities Codes § 454.51(a).

with CARB if the Commission adopted a definition of the social cost of carbon that was at odds with the statutory definition.

E3 proposed using the abatement cost because it can answer the question: “is energy efficiency a lower cost way to reduce GHG emissions than my alternative approach?”<sup>21</sup> However, the Commission can readily compare available measures based on the results of an SCT that uses the cost of carbon damages. Therefore, Sierra Club is not aware of any reason to choose an abatement cost over a damages cost. If, for some reason, the Commission declines to use damage cost as the correct estimate of costs, it should at least choose set a social cost of carbon in the upper end of any range of abatement costs presented to the Commission.

It is imperative that the Commission move expeditiously to update its consideration of carbon costs because the current practice of using cap-and-trade prices is out of sync with the California’s climate policy. Perversely, carbon prices in California’s cost-effectiveness methodology have *dropped* since 2012, while the State’s GHG goals have become far more aggressive. The cap-and-trade prices do not come close to capturing the social costs of carbon.

#### *Health impacts*

Sierra Club agrees that “[h]ealth benefits of reduced electricity generation and natural gas combustion beyond existing compliance costs included in TRC”<sup>22</sup> must be fully captured in an SCT. The direct health impacts of electric-sector pollution are well understood. Their enormous costs have been studied in a robust research literature.

The analysis of air quality health effects must provide the Commission with information about environmental benefits in disadvantaged communities so that it can carry out its statutory duties. The Commission must take into account environmental impacts of distributed generation in disadvantaged communities.<sup>23</sup> In addition, the Commission must adopt a process for ensuring that IRPs minimize localized air pollutants with early priority in disadvantaged communities.<sup>24</sup> Therefore, the SCT model should incorporate a model that specifically identifies the health benefits of DERs in disadvantaged communities. This can be accomplished by equipping a dispatch model with relevant methods and inputs to measure those benefits.

#### *Other environmental impacts*

DERs have several important environmental benefits that are not included in the staff proposal, including water conservation and open space preservation. All the environmental benefits of DERs should be examined and values should be included in the SCT calculation, to the extent possible, consistent with section 701.1(c). If certain environmental benefits cannot be readily quantified, the Commission should require their qualitative assessment.

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<sup>21</sup> E3 presentation, slide 6.

<sup>22</sup> E3 Recap presentation at slide 13.

<sup>23</sup> Pub. Utilities Code § 400(a).

<sup>24</sup> Pub. Utilities Code § 454.52(a)(1)(H).

### The Commission should pursue Option 1A

Option 1A is the option that ensures DER deployment decisions will maximize the resources' benefit to society. The Commission has not yet examined whether utilizing an SCT as the primary test will have any rate impacts, and so Sierra Club cannot agree that Option 1A "prioritizes environment over rate impact," as suggested by the ED.<sup>25</sup>

Sierra Club also strongly disagrees with the Energy Division's statement that Option 1A may conflict with "just and reasonable." The question of whether rates are just and reasonable focuses on whether they permissibly balance the utility's interests against the ratepayers'.<sup>26</sup> Any rate impacts of relying on the SCT would not enrich the utilities at the expense of the ratepayers. Rather, any rate impacts would be outweighed by benefits to society, which includes the ratepayers.

### Option 2 would yield a more accurate TRC if a carbon abatement cost is used

As written, Option 2 does not satisfy the Commission's duties under section 701.1(c). The cost-effectiveness framework must account for all environmental costs: not climate impacts alone. Therefore, the Commission should focus first on developing an SCT.

Although Option 2 cannot satisfy the need for an SCT, that option is a significant improvement to the TRC now in use. The goal of the TRC test is to calculate cost-effectiveness from the perspective of the utility and the participant, and these compliance costs are born by the utility. Thus, the TRC test will be more accurate if it reflects the full costs of complying with California's carbon mandates. If properly implemented, E3's proposed approach to estimating carbon abatement costs would produce a reasonable estimate of carbon compliance costs.

For these reasons, Sierra Club supports the proposal to pursue both Options 1 and 2. However, the Commission should implement Option 1 first. As discussed above, the Commission is under a statutory obligation to include all environmental costs and benefits, including air quality impacts, in its cost-effectiveness analysis. Moreover, it will be easier to develop an accurate model for carbon abatement costs once CARB completes its update to the 2030 Target Scoping Plan. E3 recognized during the workshop that determining an abatement cost could be difficult because it requires developing a reference case.

### Energy Division and the Commission should reject Option 3

Option 3 does not satisfy the Commission's obligations under section 701.1(c). The statute requires a quantitative assessment by ordering the Commission to include "values" for environmental impacts in its "calculati[ons]" of cost-effectiveness of energy resources.

Option 3 neither displaces the need for an SCT nor satisfies any other need. The Commission has resorted to qualitative assessment of non-energy benefits only when a

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<sup>25</sup> See Energy Division presentation at 21.

<sup>26</sup> Federal Power Commission v. Hope Natural Gas Co., 320 U.S. 591 at 603 (1944) ("the fixing of „just and reasonable“ rates involves a balancing of the investor and the consumer interests”).

quantitative assessment was not possible.<sup>27</sup> There is no need to resort to a qualitative assessment here because of the vast data available on the social cost of carbon and health impacts from the electrical sector. When the Commission has ordered qualitative assessment, its efforts to catalyze robust and careful assessment have been stymied; the LSEs completely failed to comply.<sup>28</sup> By approving a quantitative SCT and its data sources, the Commission can curb the LSEs' discretion in performing the SCT and ensure robust results. Finally, Option 3 is undesirable because it would be difficult to use qualitative assessments consistently across proceedings.

### Conclusion

The Commission has begun building momentum for developing an SCT in this proceeding by deferring consideration of societal costs to IDER and suggesting a timeframe for action in the draft DER action plan. The Energy Division can help the Commission develop a robust SCT within a reasonable timeframe by proposing a process for developing an SCT with the following key elements: a societal discount rate, a social cost of carbon that reflects the full costs of GHG to society, health impacts, and other environmental harms. Developing an SCT and using it as the primary cost-effectiveness test will allow the Commission to fulfill its statutory duty to consider societal costs and allow California to meet its environmental and energy policy goals.

<sup>27</sup> 2010 Demand Response Cost Effectiveness Protocols at 13 ("Where it is not possible to approximate an uncertain cost or benefit, qualitative analysis of that cost or benefit to a specific DR program should be provided by the LSE or by any party commenting on the analysis.").

<sup>28</sup> D.15-11-042 at 51-52.

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